18. *Contributions to the Crustacean Fauna of South Africa.* XII. *Further Additions to the Tanaidacea, Isopoda, and Amphipoda, together with Keys for the Identification of the hitherto Recorded Marine and Fresh-water Species.*—By K. H. Barnard, D.Sc., F.L.S., Assistant Director.

(With 35 Text-figures.)

This paper contains records of new localities, and of species new to the fauna-list, and descriptions of new species. The new material in the South African Museum is due partly to collecting by members of the staff, and partly to correspondents. Professor T. A. Stephenson, of the University of Cape Town, in the course of ecological work has submitted many specimens, including the very interesting addition to the fauna-list of a species of the Amphipodan family *Ochlesidae.* Mr. H. W. Bell-Marley, of Durban, has added several species to the fauna-list.

One of Professor Stephenson's collecting localities was Port Nolloth, from which there are very few previous records. In addition to the records given below under various species, the following Isopods were also collected at this locality. *Sphaeramene polytylotos,* and *Paridotea ungulata, rubra, reticulata,* and *fucicola.*

Although many more additions may confidently be expected, it would seem that keys to the identification of the recorded species might be of some value to South African students. An attempt has therefore been made to provide such means of identification. While the aim has been to make the keys as simple as possible, it should be emphasised that a modicum of knowledge of the chief forms of Isopods and Amphipods, and of the terminology employed in describing them, is necessary.

TANAIDACEA.

Fam. TANAIDAE.

Tanais gracilis Heller.

1866. Heller, "Novara" Exp., vol. ii, p. 133, pl. xii, fig. 3.
1905. Stebbing, Herdman's Ceylon Pearl Fish. Rep. Suppl., 23, p. 3, pl. i, fig. D.

1914 (Feb.). Barnard, Ann. S. Afr. Mus., vol. x, p. 198, pl. xvii, fig. A (*spongicola*).

1914 (July). Vanhöffen, D. Südpol. Exp., vol. xv, p. 468, fig. 6.

1925. Barnard, Ann. S. Afr. Mus., vol. xx, p. 381.

Additional Localities.—(West coast) Lambert's Bay (Professor Stephenson, 1938), Table Bay (K. H. B.); (south coast) Simon's Bay (Vanhöffen), Buffels Bay, False Bay (K. H. B.), Still Bay and East London (Prof. T. A. Stephenson).

Distribution.—St. Paul and New Amsterdam, Ceylon.

Fam. APSEUDIDAE.

Apseudes austro-africana nom. nov.

1920. Barnard, Ann. S. Afr. Mus., vol. xvii, p. 322, pl. xv, fig. 2 (*australis*, non Haswell, 1881).

ISOPODA.

Fam. GNATHIIDAE.

1926. Monod, Les Gnathiidae, Mem. Soc. Sci. nat. Maroc., vol. xiii, pp. 1–668, 1 pl. and 277 text-figs.

Gnathia cryptopais Brnrd.

1925. Barnard, Ann. Mag. Nat. Hist. (9), vol. xv, p. 417.

1926. Monod, *loc. cit.*, p. 625.

This species was originally likened to *elongata* (Kröyer) (syn. *cerina* Stimpson), which, as Monod shows, is very like *antarctica* (Studer). The type specimen is more slender than Monod's figure of the latter species, but with only one specimen available a detailed comparison is not possible.

Fam. ANTHURIDAE.

1925. Barnard, J. Linn. Soc. Lond., vol. xxxvi, p. 109, revision.

Gen. *Haliophasma* Hasw.

1925. Barnard, Ann. S. Afr. Mus., vol. xxv, p. 385.

A point to which perhaps more attention might be paid (in the whole family) is the junction of the telson with the 6th pleon segment. With one exception, in the species of this genus already described and in those to be described below, the junction between the two is always clearly marked by the hind margin of the 6th pleon segment forming a more or less pronounced ridge, the telson being at a lower level than that of the 6th pleon segment. In *pseudocarinata*, however, the telson and 6th pleon segment are completely fused, there is no transverse ridge, and the level of the telson is flush with that of the 6th pleon segment.

Haliophasma hermani n. sp.

(Fig. 1.)

Integument not strongly indurated, not pitted. Dorso-lateral keels feeble, dorso-lateral grooves distinct. Medio-dorsal pits deep. Eyes well developed. Pleon segments 1–5 with indistinct sutures.

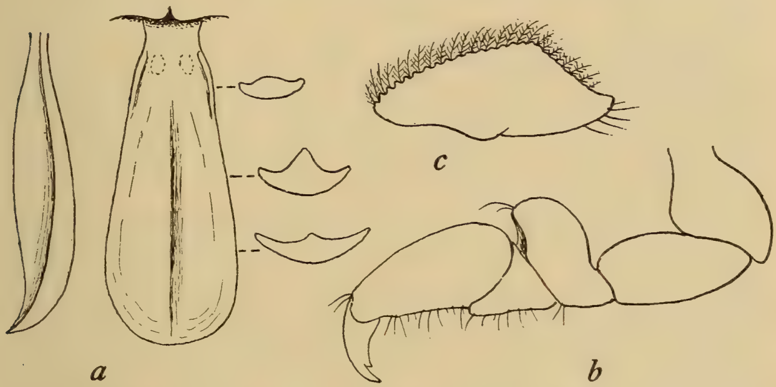

Fig. 1.—*Haliophasma hermani* n. sp. *a*, hind margin of 6th pleon segment, with telson, and sagittal and cross-sections of latter. *b*, peraeopod 1. *c*, outer ramus of uropod.

Telson arising beneath the arcuate hind margin of 6th pleon segment; obovate, apex semicircularly rounded, upturned, ventral surface evenly but rather strongly convex, dorsal surface concave, with sharp medio-dorsal keel.

Flagellum of antenna 1 a single joint, with minute setiferous apical rudiment of a 2nd joint; flagellum of antenna 24-jointed. Maxilliped 5-jointed.

Peraeopod 1, 4th joint very broad, 5th with lower apex slightly projecting, 6th not as wide proximally as the 4th, tapering distally, palm straight.

Pleopod 1 not indurated, outer surface smooth.

Uropod, inner ramus slightly longer than wide, apex rounded, not reaching to level of telsonic apex, outer ramus folding over telson, ovate, apically obliquely truncate, outer margin finely serrulate, with fringe of plumose setae.

20 mm. Cream coloured, with faint greyish stippling in the hollows beneath the dorso-lateral margins into which peraeopods 2–7 can be folded, eyes black.

Locality.—Hermanus, from cavity in the root-stock of an *Allopora* coral (April 1932, 1 immature ? ♀).

Remarks.—Easily distinguished from the other species of the genus by the telson, but nearest to *dakarensis* in this respect. The hand of peraeopod 1 is unusually feeble.

Haliophasma foveolata n. sp.

(Fig. 2.)

Integument strongly indurated, with numerous large foveolae. Dorso-lateral keels feeble, dorso-lateral grooves distinct. Medio-dorsal pits obsolete. Eyes well developed. Pleon segments 1–5 with sutures indistinct. Hind margin of 6th pleon segment distinct but not projecting strongly over base of telson.

Telson broadly ovate, the distal half narrowing rather abruptly, apex narrowly rounded, dorsally with 3 longitudinal subparallel ridges which do not coalesce basally, the intervening grooves foveolate, ventral surface slightly concave.

Flagellum of antenna 1 7-jointed, the distal joints with sensory filamentous setae; flagellum of antenna 2 6-jointed. Maxilliped 5-jointed, inner plates small but distinct.

Peraeopod 1 robust, 3rd joint unusually long, lower apex of 5th subacute, 6th subtriangular, palm expanded at base; outer surface of 2nd, 3rd and 6th joints with scattered foveoles.

Pleopod 1, outer surface of outer ramus with a medio-longitudinal groove, another groove on outer margin distally, between the two grooves a few large foveoles.

Uropod, inner ramus subtriangular, longer than its basal width, not reaching telsonic apex, outer ramus folding over basal lateral portion of telson, ovate, with sinuous outer margin, apex acute, outer margin serrulate, with plumose setae.

12·5 × 1·5 mm. Creamy-white with faint grey speckling on dorsal surface, eyes black.

Locality.—Port Elizabeth, amongst corallines, worm-tubes, etc., under stones (Prof. T. A. Stephenson, July 1936, 1 immature ? ♀).

Remarks.—Like the ♀ co-type of the Australian *purpurea* (Barnard,

J. Linn. Soc., vol. xxxvi, p. 132), this specimen has the integument strongly pitted or foveolate. The telson agrees with that of *purpurea* in being noticeably wider in the proximal than in the distal half; but it agrees with that of the South African *tricarinata* in that the 3 dorsal keels do not coalesce basally. There is, however, a difference in the shape of the telson in cross-section: biconvex in *tricarinata*, concavo-convex in *foveolata*. Perhaps the wider body, the pitted integument, and the telson proximally widened and concavo-convex in cross-section are female characters. I am inclined to suspect that this is so, and that this species is only the female of *tricarinata*.

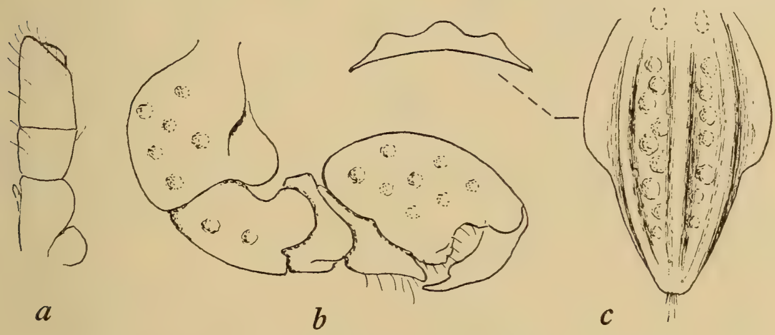

Fig. 2.—*Haliophasma foveolata* n. sp. *a*, maxilliped. *b*, peraeopod 1. *c*, telson, with cross-section.

A comparison with *coronicauda* (fig. 3, *d*) on the other hand shows that in cross-section the telson is nearly the same; there is even a very slight indication of a median ridge in *coronicauda*; but the thin rim of the telson shows no sudden narrowing as in the present specimen.

In view of this perplexity, all the specimens of the three forms being immature, and until some definite evidence of sexual dimorphism is forthcoming, it seems clearly advisable to institute a full specific name for this foveolate specimen.

As *coronicauda* has not been figured previously, a figure of the telson is given here for comparison.

Haliophasma pseudocarinata n. sp.

(Fig. 3, *a–c*.)

Integument strongly indurated, not pitted. Dorso-lateral keels feeble, dorso-lateral grooves distinct. Medio-dorsal pits shallow and ill-defined. Eyes well developed. Pleon segments 1–5 with sutures indistinct, but indicated ventro-laterally by pale (non-pigmented) lines.

Telson fused with 6th pleon segment, without any transverse dividing ridge or suture, surface flush with that of 6th pleon segment; ovate, sides slightly sinuous, apex rounded; dorsally apparently smooth when viewed in liquid, but when dried there is seen a shallow median pit basally, a pair of shallow depressions laterally (into which the statocysts open), and three very feeble longitudinal keels, one median, and one on each side nearly parallel with the lateral margin, but gradually coalescing with the margin apically; ventral surface concave.

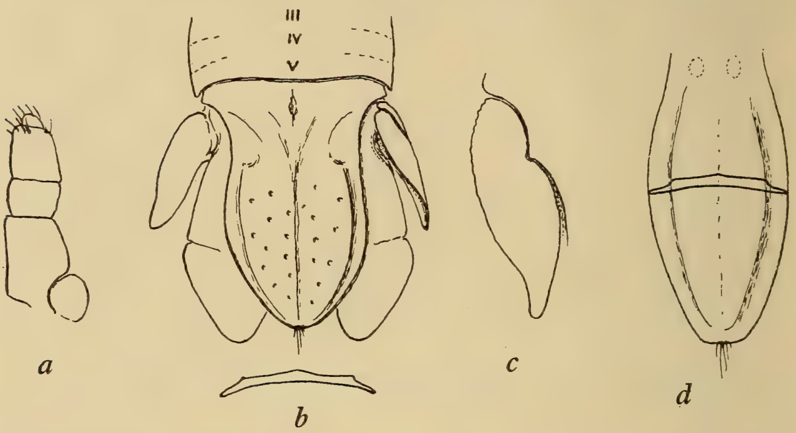

Fig. 3.—*Haliophasma pseudocarinata* n. sp. *a*, maxilliped. *b*, 3rd–5th pleon segments, fused 6th segment and telson, with cross-section of latter. *c*, external view of outer ramus of uropod.
Haliophasma coronicauda Brnrd. *d*, telson, with cross-section.

Flagellum of antenna 1 8-jointed, of antenna 2 6-jointed. Maxilliped 5-jointed.

Peraeopod 1, 6th joint robust, proximally much wider than the preceding joints, subtriangular, palm straight, unguis short.

Pleopod 1 feebly indurated, outer ramus with slight median and lateral grooves.

Uropod, inner ramus ovate, apex extending slightly beyond apex of telson, outer ramus folding inwards, but so narrow as not to overlap on to telson when thus infolded, ovate, outer (upper) margin slightly sinuous, serrulate, with plumose setae.

18 × 2·3 mm. Creamy, the dorsal surface of head, peraeon, pleon, telson, and peduncle of uropods mottled with brown, eyes black.

Locality.—Port Elizabeth, under stones (Prof. T. A. Stephenson, July 1936, 1 immature ♀).

Remarks.—The telson of this species is a good example of the danger of examining a specimen in liquid only; the sculpturing is so slight as to be easily overlooked. It bears a very strong resemblance to that of *coronicauda* (fig. 3, *d*), and this form may eventually prove to be the ♀ of the last-mentioned species. The shape of the tail-fan, however, which can scarcely be said to form a cup owing to the narrowness of the outer rami of the uropods; and the complete fusion of the telson and 6th pleon segment seem to indicate the necessity of a separate specific name.

Exanthura macrura Brnrd.

1925. Barnard, *loc. cit.*, p. 131.

Additional Locality.—Lambert's Bay (Prof. T. A. Stephenson, 1938, 1 ♀).

Apanthura sandalensis Stebb.

1925. Barnard, *loc. cit.*, p. 141.

Additional Locality.—East London (Prof. T. A. Stephenson, July 1937).

FAM. EURYDICIDAE.

1930. Monod, Ann. Sci. Nat. Zool., ser. 10, vol. xiii, pp. 129–183 (*Cirolanidae*).

Gen. *Eurydice* Leach.

1914. Vanhöffen, Deutsch. Südpol. Exp., vol. xv (Zool. vii), p. 505.
1914. Barnard, Ann. S. Afr. Mus., vol. x, p. 350 *a*.
1925. *Id.*, *ibid.*, vol. xx, p. 381.
1931. Nierstrasz, Siboga Exp. monogr., xxxii *c*, p. 147.

Eurydice latistylis Vanhöffen (non Dana) is obviously not an *Eurydice* (which has the 5th pleon segment free laterally), and is perhaps an *Argathona* or a young *Cirolana cranchii* (syn. *vicina* Brnrd.).

Eurydice natalensis Vanhöffen also is clearly not a member of this genus, but belongs to *Pontogeloides* as I suggested in 1925, or to *Excirolana* (see *infra*). This genus contains therefore only the one species in South Africa, viz. *E. longicornis* (Studer).

Gen. *Excirolana* Richardson.

1912. Richardson, Proc. U.S. Nat. Mus., vol. xliii, p. 201.
1931. Nierstrasz, *loc. cit.*, p. 148.

Excirolana natalensis (Vanhöffen).

(Fig. 4.)

1914. Vanhöffen, *loc. cit.*, p. 506, fig. 42.
1925. Barnard, *loc. cit.*, p. 381.
1931. Nierstrasz, *loc. cit.*, p. 149.

A single ♀ resembles *P. latipes* very closely. It possesses the same clypeus and frontal lamina, bifoveolate telson with the median row of little pits, pleopods with accessory laminae, acorn-like 1st and 2nd joints of peduncle of antenna 1, 4-jointed peduncle of antenna 2, and free margins of 5th pleon segment. The differences, however, are as follows:—

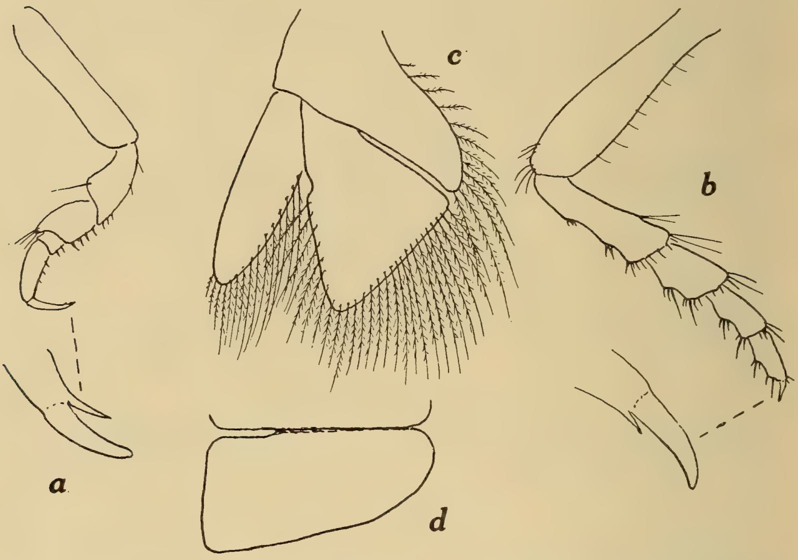

Fig. 4.—*Excirolana natalensis* (Vanhöffen). *a, b*, peraeopods 1 and 7, with ungues further enlarged. *c*, uropod. *d*, 1st free side-plate (on segment 2) of right side.

Antenna 1 extending to end of 3rd peraeon segment, antenna 2 to middle of 6th segment; joints of peduncle of antenna 2 not so broadly laminar, 4th joint distinctly longer than 3rd.

Side-plates shallower, especially the anterior ones, side-plate 1 (*i.e.* 1st free plate, on segment 2) being twice as long as deep.

Uropod, inner apex of peduncle not so quadrate, slightly tapering, inner ramus with small notch slightly *proximal* to middle of outer margin.

Peraeopods not so robust (fig. 4, *a*, *b*).

Mandibular palp 3-jointed, slender, inserted behind level of molar process (as in *P. latipes*).

10 × 4·3 mm. Pale straw colour, a few black stellate specks on head, and a single series across each peraeon and pleon segment.

Locality.—Plettenberg Bay (K. H. B., Jan. 1931. 1 ♀ washed up on ocean beach near mouth of Keurbooms River).

Remarks.—Whether this specimen is really the same as Vanhöffen's Port Natal (Durban) species is uncertain, because Vanhöffen did not dissect the mouth-parts of his single specimen, and left several other features undescribed; unfortunately also his figure of the pigmentation shows the hinder side-plates instead of the anterior ones.

The antennae fit in with *natalensis* as regards the length, but the peduncle of antenna 2 in my specimen is more robust (but not so robust as in *latipes*); possibly Vanhöffen's specimen was a ♂, though in *latipes* there is no sexual difference in the antennae.

The figure of *natalensis* shows the outer margin of inner ramus of uropod without any notch.

Both Vanhöffen's and the present specimens have the telson shorter relatively to its breadth than in *orientalis* (Dana).

Gen. *Pontogeloides* Brnrd.

1914. Barnard, *loc. cit.*, p. 355 *a*.
1930. Monod, *loc. cit.*, pp. 174 *sqq.* (subgen. of *Excirolana*).
1931. *Id.*, Rev. Zool. Bot. Afric., vol. xxi, p. 3.
1931. Nierstrasz, *loc. cit.*, p. 149 (subgen. of *Excirolana*).

Nierstrasz included *japonica* Thielemann, 1910, because the figure shows a 2-jointed mandibular palp, though this is not mentioned in Thielemann's text. The character of the peduncle of 1st antenna, however, fits in with *Excirolana*, all three joints being subequal.

Pontogeloides latipes Brnrd.

(Fig. 5.)

1914. Barnard, *loc. cit.*, p. 356 *a*, pl. xxx, fig. C.
1930. Monod, *loc. cit.*, p. 179, figs. 28 F, 31, 32.
1931. *Id.*, *loc. cit.*, p. 3.

The statement in my original description that the peduncle of antenna 2 is 5-jointed is incorrect; it is impossible to distinguish two fused joints in the first free joint, and thus in practice the peduncle must be regarded as 4-jointed.

I also overlooked the fact that the telson is bifoveolate, a character which makes the resemblance of *E. carangis* van Name to *latipes* all the greater. The whole integument is very sparsely pitted, but on the median region of the telson between the two foveae, a number of them form a single more or less regular medio-longitudinal line.

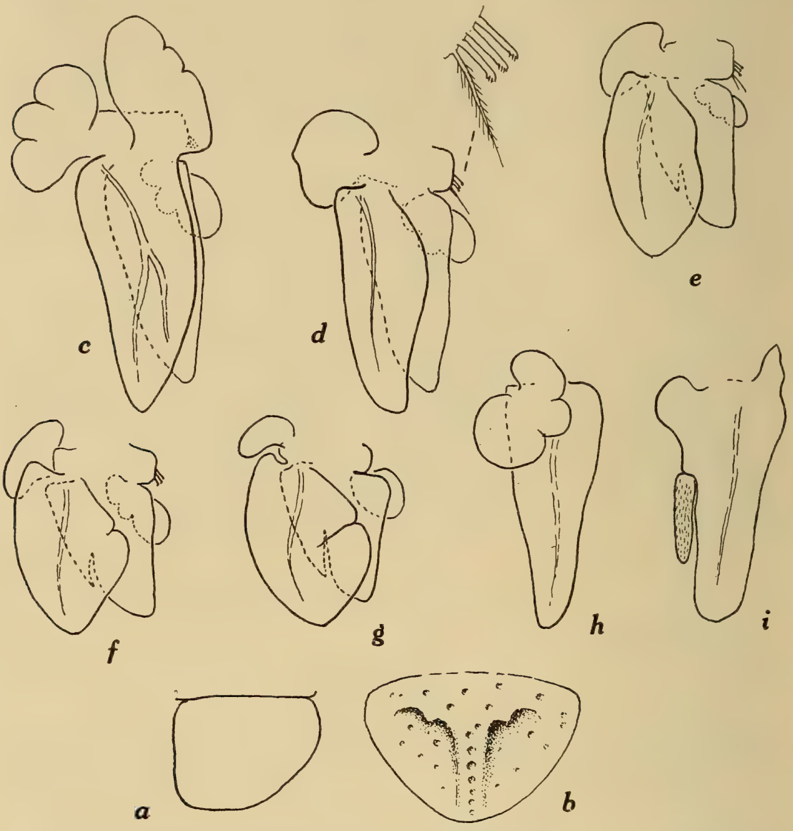

Fig. 5.—*Pontogeloides latipes* Brnrd. *a*, 1st free side-plate (on segment 2) of right side. *b*, telson. *c, d, e, f, g*, pleopods 1–5 respectively. *h*, inner (dorsal) view of inner ramus of pleopod 1. *i*, inner ramus of pleopod 2, ♂.

The suture between the rostral point of the head and the anterior upturned end of the frontal lamina is distinct and on the dorsal surface.

The pleopods are interesting (*cf.* Monod, 1930, *loc. cit.*, fig. 31). The peduncle of all 5 pairs has a laminar expansion (? epipodite) of the outer margin (*cf.* Calman in Lankester's Treatise Zool., 1909, fig. 127, *Nerocila*). Further, the inner ramus of all the pleopods bears a lobe at its inner basal corner (*cf.* Calman's figure), which lobe is usually folded back on the inner (*i.e.* the dorsal surface) of the ramus. The outer ramus of pleopod 1 also bears a lobe on its inner basal corner. All these lobes, especially that on outer ramus of pleopod 1, are larger in the ♀ than in the ♂. The ♂ stylet on pleopod 2 is densely covered with minute adpressed spinules.

Side-plates deep; side-plate 1 (on segment 2) a little longer than deep (if dissected; prior to dissection the anterior corner is concealed under peraeon segment 1, and the side-plate appears to be as deep as long).

Monod (1924, Parasitolog. Maurit. Bull. Com. d'Et. Hist. Sc. Afr. Occid. Fr., vol. i, p. 68, fig. D, and *loc. cit.*, 1930, 1931) makes *carangis* van Name (1920, Bull. Amer. Mus., vol. xliii, p. 49, figs. 1–5) a synonym of this species, and gives its distribution as from Rio de Oro (Sahare Occidental) to South Africa. The 1st antennae are much longer in *carangis* than in *latipes*, and in my opinion the identity of the former with the latter requires confirmation from a comparison of actual specimens.

Locality.—Keurbooms River estuary, Plettenberg Bay (K. H. B., Jan. 1931, numerous specimens on the sandbanks in the estuary, collected at low tide).

Gen. *Gnatholana* Brnrd.

1920. Barnard, *loc. cit.*, vol. xvii, p. 352.

Monod in his monograph of the *Gnathiidae* (1926, *loc. cit.*, pp. 639 *sqq.*) has discussed the relationship of the fossil *Urda*, from the Jurassic of Solenhofen, to the *Gnathiidae* and Cymothoids; and regards *Gnatholana* as a living representative of the *Urdaidae*. Without having seen any of the actual fossils of *Urda* (*Rektur*), or even the original descriptions (*e.g.* Kunth, 1870, Zeitsch. Deutsch. Geol. Ges., vol. xxii), I make no comment except that the figure of *U. rostrata* (Monod, *loc. cit.*, fig. 274 after Kunth) shows many resemblances to the Cymothoids, especially some juveniles, and none to *Gnatholana*. And without throwing the slightest doubt on the interpretation of the falcate processes in front of the head as being really mandibles, one may remark that some juvenile Cymothoids have falcate dactyli and that the first pair of legs might have been pushed forward prior to fossilisation. One assumes, however, that a fossil specimen clearly showing the ventral surface has been examined. Nevertheless I feel some doubts as to the propriety of uniting the living *Gnatholana* with the fossil *Urda* in one and the same family.

Gen. *Cirolana* Leach.

1925. Hale, Trans. Roy. Soc. S. Austr., vol. xlix, p. 129.
1930. Monod, *loc. cit.*, pp. 130 *sqq.*, 141, 142.
1931. Nierstrasz, *loc. cit.*, pp. 149 *sqq.*
1935. Barnard, Rec. Ind. Mus., vol. xxxvii, p. 308.

One character, to which insufficient attention has been paid, is the form of the penial processes or papillae. Vanhöffen (1914, *loc. cit.*), however, is an exception among authors, and has given figures for all the species described by him, except *hirtipes*, of which species apparently he had no ♂♂. The reason for this exception may be due to the fact that in this species there are no upstanding papillae, the vasa deferentia opening by pores flush with the surface of the sternum (Barnard, 1935, *loc. cit.*, p. 309).

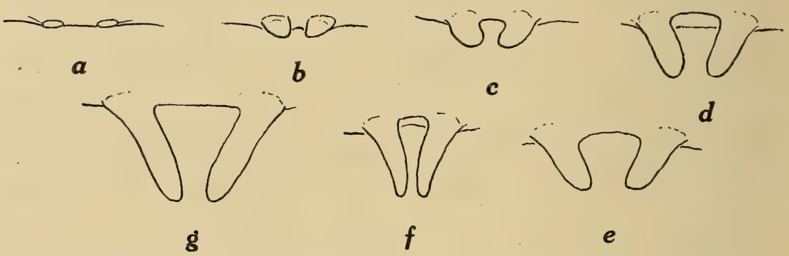

Fig. 6.—*Cirolana*, penial processes. *a, venusticauda* Stebb. *b, cranchii* Leach (*vicina* Brnrd.). *c, theleceps* n. sp. *d, cingulata*. *e, meinerti* Brnrd. *f, sulcata* Hansen. *g, palifrons* Brnrd.

As far as ♂ material is available, the South African species fall into the following groups (fig. 6):—

No papillae, pores flush with surface .	*hirtipes*. *virilis*. *undulata*. *fluviatilis*. *littoralis*. [*pleonastica* not S. Afr.].
No papillae, pores flush with surface but on a very slight transverse ridge . .	*venusticauda* and var. *simplex*.
Papillae very short, mammilliform . .	*cranchii* (*vicina* Brnrd.). *theleceps*. [*willeyi* not S. Afr.].

Papillae well developed, at least twice as long as broad	*meinerti.* *cingulata.* *palifrons.* *sulcata.* *rugicauda.*

Clearly this character is worth incorporating in the description of a species.

Cirolana virilis n. sp.

(Fig. 7, *d.*)

Superficially resembling *hirtipes.* Antenna 2 extending back to beginning of 4th peraeon segment. Side-plates with oblique ridges slightly more distinct than is normal in *hirtipes,* thus differing from *borealis* (where they are obsolete). Postero-inferior corner of side-plate 4 (on 4th peraeon segment) quadrate. On the head the impressed punctate line is confined to the hind margins of the oblong eyes and is *not continuous* across the median area. Frontal lamina and peraeopods as in *hirtipes.* Vasa deferentia opening by pores flush with the surface. Apex of telson with 16 spines in addition to the plumose setae.

Stylet on pleopod 2, ♂, very stout and strongly curved, even more so than in *borealis* (see Hansen, 1890, Cirolanidae, pl. i, fig. 1, *t*), and absolutely different from the slender, straight stylet of *hirtipes* (Hansen, pl. i, fig. 2, *f*). 13·5 mm.

Locality.—33° 59′ S., 25° 43′ E. (Algoa Bay), 33 fathoms (s.s. "Pieter Faure," Nov. 1898, 1 ♂).

Cirolana natalensis n. sp.

In general appearance similar to *hirtipes.* Eyes subrotund. A small rostral point almost meeting the frontal lamina and separating the bases of 1st antennae. An obscure impressed line on hind margin of eyes, but not continued across the median area. Side-plates 1–4 with postero-inferior corners distinctly rounded. Telson about as long as its basal width, apex somewhat pointed (cf. *neglecta,* Hansen, *loc. cit.*, pl. i, fig. 3, *a*), with 12 spines among the plumose setae.

Antenna 2 extending back to end of peraeon segment 3. Frontal lamina as in *hirtipes.*

Peraeopods 1–3 more slender than in *hirtipes,* with a less conspicuous spine on outer apex of 4th joint, and more slender spines on inner margins of 4th–6th joints. Peraeopods 4–7 more robust than in *hirtipes*, the inner margins of 3rd–5th joints undulate and crenulate rather than definitely notched (*cf.* Hansen, *loc. cit.*, pl. i, fig. 2, *d*), and with more numerous and longer spine-setae; 2nd joint of peraeopods 5–7 more broadly oval, in peraeopod 7 its greatest width in the *middle* of the joint (not in distal third), but with fringe of long plumose setae as in *hirtipes*. Up to 13 mm., but no adult ♂♂ or ovigerous ♀♀.

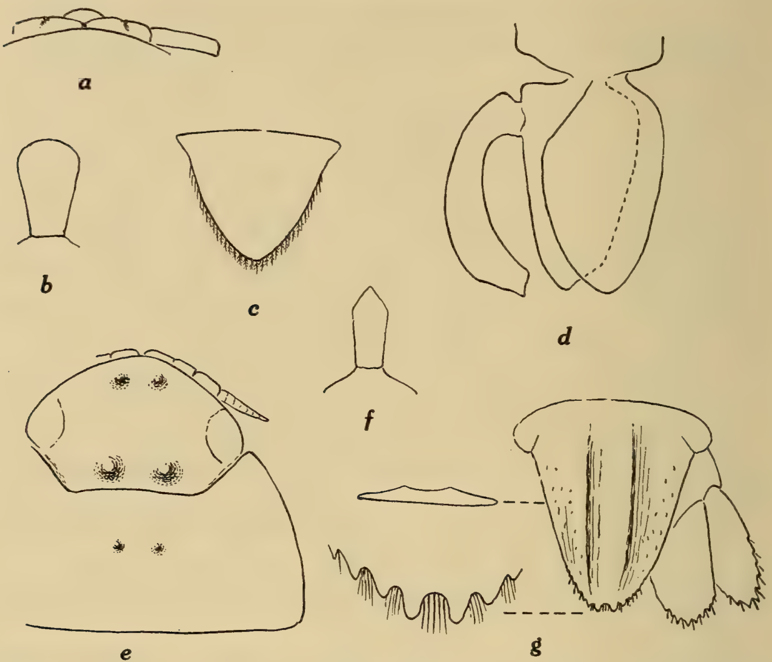

Fig. 7.—*Cirolana luciae* n. sp. *a*, dorsal view of front of head. *b*, frontal lamina. *c*, telson. *Cirolana virilis* n. sp. *d*, pleopod 2, ♂. *Cirolana theleceps* n. sp. *e*, dorsal view of head and 1st peraeon segment. *f*, frontal lamina. *g*, telson and uropod, with cross-section of telson, and apex further enlarged.

Locality.—Illovo, Natal (H. W. Bell-Marley, 1934, "An enemy of fishes, and anglers' *bête noire*").

Remarks.—The shape of the eyes, the stouter and more spinose hinder peraeopods, and the hind angle of the 4th side-plate distinguish this species from *hirtipes*; the telson also is more pointed. The shape of the 2nd joint of peraeopod 7 seems to distinguish this species from other species belonging to this group (*borealis*, *japonensis*, etc.), in all of which the greatest width is towards the distal end.

Cirolana undulata Brnrd.

1914. Barnard, *loc. cit.*, p. 353 *a*, pl. xxx, fig. A.

Additional Locality.—Port Nolloth (Professor Stephenson, 1938).

Cirolana fluviatilis Stebb.

1902. Stebbing, S. Afr. Crust., pt. 2, p. 52.
1920. Barnard, *loc. cit.*, p. 346, pl. xv, fig. 19 (frontal lamina).
1924. Chilton, Mem. Ind. Mus., vol. v, p. 882, pl. lx, fig. 2 (*pleonastica*, non Stebbing).
1926. *Id.*, Rec. Ind. Mus., vol. xxviii, p. 180, fig. 2 (*pleonastica*, non Stebb.).
1935. Barnard, *ibid.*, vol. xxxvii, p. 310, fig. 19.

The vasa deferentia open by pores flush with the ventral surface. The apex of the telson is rather broadly rounded in the young and half-grown, but assumes a narrow-rounded shape in the adult, slightly more narrow in ♂ than in ♀ (fig. 19 in Barnard, 1935).

Additional Localities.—St. Lucia Bay, Zululand (H. W. Bell-Marley, 1919, 1 ♂); Keurbooms River, Plettenberg Bay (K. H. B., Jan. 1931, ♂♂, ♀♀, from submerged rotting logs and timber in the estuary); Knysna River (K. H. B., Nov. 1938).

Distribution.—Chilka Lake, India; Talé Sap, Siam.

Cirolana theleceps n. sp.

(Figs. 6, *c*, 7, *e–g*.)

Body smooth, coarsely but sparsely punctate, convex, sublinear in outline. Head without rostral point, slightly produced over the contiguous bases of 1st antennae, dorsal surface in ♂ with 4 rounded tubercles, 2 near the anterior margin feeble, 2 near the hind margin much stronger; in ♀ quite smooth. Frontal lamina a trifle more than twice as long as wide, elongate pentagonal.

Peraeon segment 1 in ♂ with 2 small tubercles approximately in the middle of dorsum (easily overlooked unless specimen is examined dry). Side-plates shallow, 4–7 with oblique ridges. Lateral margins of pleon segment 5 overlapped by segment 4. Telson triangular, longer than basal width, apex rather broadly rounded, with 4–5 strong teeth on either side of median line, 3–5 setae arising from each notch, except the proximal ones where there is only 1 seta, dorsal surface not very convex, with broad shallow median longitudinal groove of nearly even width from base to apex, and with minute scattered setules.

Antenna 1 short, reaching to hind margin of third peraeon segment, flagellum 5–6-jointed. Antenna 2 reaching to middle or end of peraeon segment 4, peduncle 5-jointed, 4th and 5th joints subequal, flagellum about 23-jointed, with brush-like hemi-whorls of setae, stronger in ♂ than in ♀, on the proximal joints.

Mouth-parts normal. Second joint of palp of maxilliped very broad, subcircular.

Peraeopod 1 stout, 3rd joint with a very stout blunt spine on inner apex, 4th not strongly produced on outer apex, with 5 similar stout blunt spines on inner margin, 5th very short, underriding 6th, latter with 1 stout conical spine on inner apex, 7 with very short blunt spine at base of unguis. Peraeopod 7, 2nd joint oval, half as long again as broad.

Penial processes on 7th sternite short and stout. Stylet on pleopod 2, ♂, slender, straight, arising from base of, and extending slightly beyond, inner ramus.

Uropod, inner ramus extending beyond telsonic apex, apex rounded with about 8 teeth, the intervening notches with 2–5 setae rather longer than those on telson, outer ramus slightly shorter, apex rounded with 4–5 teeth, intervening notches with setae. 7–8 × 2·5 mm.

Pale yellowish, with transverse series of dendritic or stellate dots, 3–4 rows across each peraeon segment, a single row across each pleon segment.

Locality.—Durban and Illovo (H. W. Bell-Marley, June 1930 and July 1934, ♂♂, ♀♀).

Remarks.—The strong teeth on the margins of the telson and the uropods are a feature of this species, though paralleled by *hanseni* Bonnier, 1896 (see also Hansen, 1905, J. Linn. Soc. London, xxix); the uropods of *Neocirolana obesa* Hale, 1925, also are somewhat similar. The presence of tubercles on the head in the ♂ is reminiscent of the genera *Corallana* and *Lanocira*, but the mouth-parts of the present species are typical of *Cirolana*. The presence of a secondary unguis on some or all of the peraeopods (*Neocirolana* Hale, 1925) can scarcely be considered of generic importance; it occurs in varying degrees of prominence in quite a number of species of *Cirolana*.

Cirolana luciae n. sp.

(Fig. 7, *a–c*.)

Body smooth, convex, oval in general outline. Head without rostral point, bases of 1st antennae contiguous. Frontal lamina oblong, about twice as long as middle width, widening slightly in front to the gently rounded anterior margin, which is free and visible beyond the 1st antennae in dorsal view.

Side-plates shallow, 4–7 with oblique ridge. Pleon segment 5 laterally overlapped by segment 4. Telson triangular, length a little less than basal width, smooth, apex rounded, sides convex, margin with closely set short plumose setae, but no spines.

Antenna 2 extending to end of peraeon segment 3, 5th peduncular joint very slightly longer than 4th.

Peraeopods 1–4, 4th joint not produced. Peraeopods 5–7, 2nd joint nearly linear, not expanded, not strongly setose. Uropod, inner ramus extending beyond telsonic apex, apex subacute, distal margin with plumose setae and 9 widely spaced spines, outer rami lost. 9 × 3·5 mm.

Locality.—St. Lucia Bay, Zululand (H. W. Bell-Marley, Oct. 1919, 1 ♀).

Remarks.—In association with *fluviatilis,* with which species it closely agrees in the shape of the frontal lamina.

The frontal lamina appears to be similar also to that of *arcuata* Hale, 1925, but there it does not project so as to be visible in dorsal view as in the present species. The same remark applies to *indica* Nierst, 1931, which species has an even shorter telson.

Cirolana rugicauda Heller.

(Fig. 8.)

1868. Heller, Reise der "Novara" Crust., p. 142, pl. 12, fig. 13.
1890. Hansen, Vidensk. Selsk. Skr., ser. 6, Bd. v, p. 358.
1914. Vanhöffen, *loc. cit.*, p. 503, fig. 40.

The present specimens agree with Heller's description as supplemented by Vanhöffen's account of specimens obtained at the type locality. The explanation of Heller's figure, which shows (apparently) *two* knobs on the telson, seems to be that the artist mistook a pale dot in the otherwise dark pigmentation for a knob; such a pale dot is present in nearly all the South African examples between the real knob and the base of the telson. The knob is not present in a young specimen 3 mm. in length, but is present in one of 4·5 mm.

The whole integument is coarsely and rather closely pitted, a feature mentioned by Heller for the telson ("grob puntiert"). Vanhöffen says the telson is "gekörnelt" and that the whole surface is covered with hexagonal markings, from each of which arises a bristle;

which is likewise correct for the South African specimens, the bristles being mostly on the pleon and telson.

The anterior margin of the clypeus is free and prominent. The bases of the 1st antennae are contiguous. The anterior margin of the head is costate, and there is a very small rostral point.

Vanhöffen mentions that the 3rd pleon segment overlaps laterally the 4th segment, but in his figure this overlapping is not so marked as in the present specimens, where the point of segment 3 overlaps as far as the basal lateral swelling of the telson and is almost contiguous with the peduncle of the uropod. This feature is very distinctive and might be utilised to subdivide (subgenerically) the genus *Cirolana.*

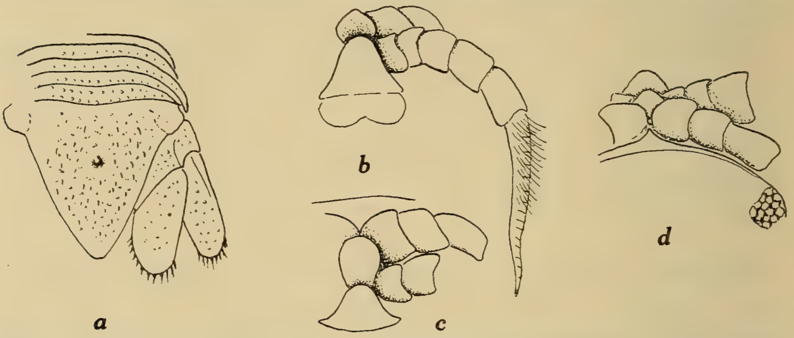

FIG. 8.—*Cirolana rugicauda* Heller. *a*, pleon, telson, and uropod. *b, c, d,* ventral, frontal, and dorsal views of head front of, showing clypeus, frontal lamina, bases of antennae, and rostral point.

Penial processes on 7th sternite well developed (see figure in Vanhöffen).

Up to 14 mm. Colour as described by Vanhöffen.

Locality.—Port Nolloth (several specimens ex Natal Museum).

Type Locality.—St. Paul Island (southern Indian Ocean).

Remarks.—The discovery of this species on the west coast of South Africa, within the influence of the cold west-drift (Benguella) current, is very interesting. Heller noted (*loc. cit.*, p. 269) two Crustacea common to St. Paul and the Cape: the crayfish *Palinurus lalandei* and the Isopod "Sphaeroma" (=*Parisocladus*) *perforata.* He might have added *Neptunus sanguinolentus,* as appears from his table of species on p. 256. Further species common to the two regions are *Tanais gracilis* Heller and *Dynamenella huttoni* (syn. *brunnea* Vanhöffen and *kraussi* Brnrd.).

This species was not found by Professor Stephenson at either Port Nolloth or Lambert's Bay, but has recently (February 1939) been collected by him at Steenbergs Cove, St. Helena Bay.

Cirolana incisicauda, n. sp.

(Fig. 9, *a*, *b*.)

The remarkable species here figured agrees in all essentials with *venusticauda-simplex* except as regards the telson and the prominently acute side-plates on segments 4–7.

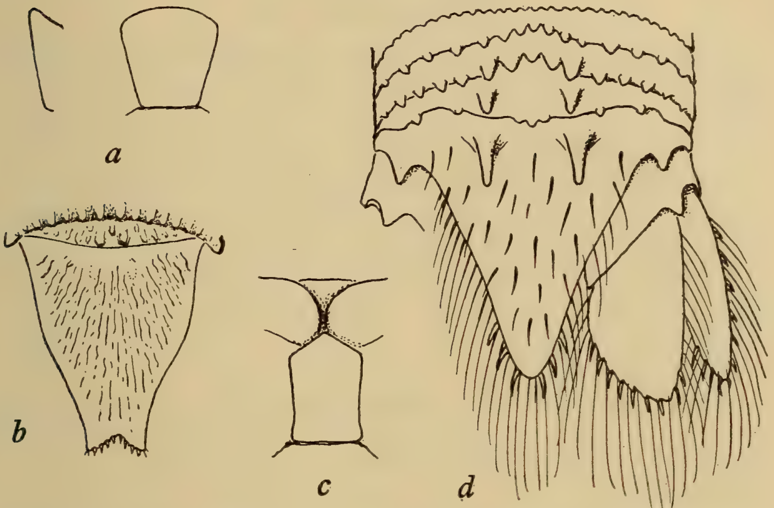

Fig. 9.—*Cirolana incisicauda*, n. sp. *a*, frontal lamina, profile and ventral view. *b*, telson.
Cirolana bovina n. sp. *c*, frontal lamina and bases of 1st antennae. *d*, pleon, telson, and uropod (setae on telson and uropods plumose).

The frontal lamina agrees with that of the species just mentioned. The hinder peraeon segments are crimped (with short longitudinal ridges and furrows), and the pleon segments are rugulose as in *simplex*. The telson is thin, slightly upturned at the apex which is shallowly notched, with 4 spines on each side in the notch. The dorsal surface is finely rugulose (best seen when dried), with minute and short, scattered setules. The inner ramus of uropod has 7 strong spines on inner margin and 5 small spinules on outer margin; the outer ramus is considerably shorter than the inner, and carries 7 strong spines on inner margin and 7 spinules on outer margin.*

Length 17 mm. Creamy-white, with faint brown dendritic mottling and dots.

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* Since this was in print I have seen 4 more specimens, which show that this is not a casual aberration but a valid species.

Localities.—Port Elizabeth and Port Alfred (Prof. T. A. Stephenson, 1936 and 1939). Inhabits the tubes of the Polychaet *Gunnarea*; the tail-fan forms an effective "operculum," as in the case of *Exanthura macrura* Brnrd.

Cirolana bovina n. sp.

(Fig. 9, *c*, *d*.)

Anterior margin of head evenly convex, without rostral point, with submarginal impressed line. Bases of 1st antennae in contact, first two joints of peduncle not clearly distinct, flagellum 10–12-jointed. Second antennae reaching to about end of 4th peraeon segment.

Frontal lamina pentagonal, half as long again as broad, sides straight, distal margins meeting in an obtuse angle, apex not freely projecting.

Peraeon segments smooth, sparsely punctate, no transverse impressed lines, hind margins of posterior segments (6 and 7, or 5–7) feebly crenulate or denticulate. An oblique ridge on side-plates 4–7; the hinder side-plates with a few long setae. No fringes of long setae on 2nd joints of peraeopods.

Pleon segments 2–5 with denticulate hind margins; hind margin of segment 4 arcuate, with median excision, and a slightly enlarged submedian denticle on either side; segment 5 with 2 large submedian conical tubercles. The lateral margin of segment 4 is posteriorly angular (not rounded as in *fluviatilis*); an oblique ridge on segment 4, a much feebler one on segment 3.

Telson triangular, sides slightly concave, apex narrowly rounded, with 3 spines (sometimes 4 on one side) on each side hidden amongst the dense fringe of plumose setae; dorsal surface with a conical denticle overhanging the insertion of uropod, and a pair of strong submedian, backwardly projecting conical or spiniform tubercles near base, rest of surface smooth with rather long scattered setae.

Uropods, inner ramus broadly rounded, with 7 (6–8) spines on inner, and 2 on outer, distal margin; outer ramus narrow ovate, with 4 spines on inner distal margin and about 6 on outer margin; all spines hidden in the dense fringe of plumose setae.

Ovig. ♀ 9 × 4 mm., juv. but no adult ♂ present. Creamy-white with greyish mottling, eyes black.

Locality.—East London, "shelly beach" (Prof. T. A. Stephenson, July 1937).

Remarks.—Nearest to *pleonastica* Stebb. (see Barnard, Rec. Ind. Mus., vol. xxxvii, p. 309, fig. 18, *a*, 1935), but distinguished by the broader frontal lamina, absence of transverse impressed lines on peraeon segments, and sculpture of telson.

The specific name in allusion to the Buffalo River, East London, and the two prongs on the telson.

FAM. AEGIDAE.

Aega semicarinata Miers.

1875. Miers, Ann. Mag. Nat. Hist., vol. xvi, p. 115.
1879. *Id.*, Trans. Roy. Soc. London, vol. clxviii, p. 201, pl. 11, fig. 1.
1911. Bouvier, Ann. Inst. Ocean., ser. 1, vol. iii, p. 39, pl. 2, figs. 3–5.
1914. Barnard, *loc. cit.*, p. 367, pl. 32, fig. A (*urotoma*).
1916. *Id.*, Ann. S. Afr. Mus., vol. xv, p. 106 (*corrigendum*).
1919. Stebbing, Proc. Zool. Soc. London, p. 334.

Remarks.—Bouvier gives photographic reproductions of specimens from the type locality Kerguelen, but the figure of the ventral surface does not show the frontal lamina. Stebbing records the species from the Falkland Islands.

The species is common off Cape Point and N.W. of Table Bay in 130–200 fathoms (stock-fish grounds). When alive the animal is pale salmon-coloured, with ruby-red eyes.

A. truncata Rich. (1910, Bur. Fish. Wash., Doc. No. 736, p. 14, fig. 13) from the Philippine Islands, and *A. bicavata* Nordenstam (1930, Nat. Hist. Juan Fernandez and Easter Is., vol. iii, p. 547, pl. 20, fig. 11, and text-fig. 11) from Juan Fernandez, are both very closely allied to one another and to *semicarinata*, and a direct comparison of specimens of all three forms might prove them to be conspecific.

Aega monilis Brnrd.

1914. Barnard, Ann. S. Afr. Mus., vol. x, p. 365, pl. xxxi, fig. C.

Several other specimens have been obtained from off Cape Point and Table Bay, as far north as Saldanha Bay. Some of the specimens were found in *Leuconia*-like sponges.

The transverse rows of granules are sometimes very obscure except on the pleon and posterior peraeon segments.

Gen. *Syscenus* Harger.

1923. Stebbing, Fish. Mar. Surv. Spec. Rep., 3, p. 9.

Differs from *Rocinela* in the total absence of eyes, the pleon distinctly narrower than the peraeon, the absence of a linguiform process on the mandible, the 6th joint of the 3 anterior pairs of peraeopods not expanded, with abruptly curved dactylus, and the longer 6th joint of the posterior 4 pairs of peraeopods.

Besides *infelix*, two other species of the genus have been described: *latus* Richardson (1909, Proc. U.S. Nat. Mus., vol. xxxvii, p. 85, fig. 11) from the N.W. Pacific, and *intermedius* Richardson (1910, Bur. Fish., Doc. 736, p. 17, fig. 16) from the Philippine Islands.

Syscenus infelix Harger.

1897. Sars, Crust. Norw., vol. ii, p. 67, pl. xxviii, and 1899, *ibid.*, Appendix, p. 247, Suppl., pl. i.
1905. Richardson, Bull. U.S. Nat. Mus., No. 54, p. 212, figs. 216, 217.
1910. *Id.*, Bur. Fish., Doc. 736, p. 17.
1923. Stebbing, *loc. cit.*, p. 9.

There is a *typ. err.* in Stebbing (p. 10); "5th" and "4th" peraeopods should read 7th and 6th respectively. Stebbing gives no other details, except the length 17 mm. The flagellum of the 1st antenna in Sars' figures of *infelix* is 5 (juv.)–7 (adult)-jointed; in *intermedius* 10-jointed, and in *latus* 13-jointed. In these two latter species the apex of the telson is rounded, not pointed as in *infelix*.

Locality.—Natal coast, in a coral.

Distribution.—Atlantic coast of N. America; Norwegian, Danish, and British coasts; Japan; Philippine Islands.

FAM. CYMOTHOIDAE.

Gen. *Nerocila* Leach.

1924. Monod, Parasit. Maurit. Bull. Com. Hist. Sci. Afr. Occid. franç., pp. 75 *sqq.*
1931. *Id.*, Rev. Zool. Bot. Afric., vol. xxi, pp. 5 *sqq.*
1936. Barnard, Rec. Ind. Mus., vol. xxxviii, p. 163.

In the second paper Monod admits that the forms which in 1924 he called *rhabdota* are not the *rhabdota* of Koelbel, thus recognizing the validity of my observations (1925, Ann. S. Afr. Mus., vol. xx, pp. 390, 391) that "rhabdota" as figured by him in 1924 and *cephalotes* were connected by transitional forms and were conspecific.

Very little diagnostic value can be attached to the extent of the prolongation of the hind corners of peraeon segments 6 and 7, and it should certainly not be compared relatively to the pleon segments (Monod, 1924, pp. 83, 84), because the pleon segments are subject to a variable amount of contraction according to the method of preservation.

The shape of the side-plates on segments 2 and 3 seems to be a better criterion, and judged by it all the South African Museum specimens, except two, clearly fall into *orbignyi*. One of these two, a 29-mm. ♀ "rhabdota" form, has side-plates 2 and 3 slightly outstanding and can scarcely be counted as an exception, but is interesting as leading on to the second one. This specimen is a 28-mm. ♀ "rhabdota" from Algoa Bay with side-plates 2 and 3 acute, outstanding and upturned, but only the left-side corner of peraeon segment 3 is slightly produced. It might well be claimed as a transition to *armata* Dana; it is very similar to Monod's fig. 4 (1931).

Nerocila orbignyi (Guér. Mén.).

1829–32. Guérin-Méneville, Iconogr. Règne Anim., pl. xxix, figs. 3, *a–e* (*Ichthyophilus orbignyi*).
1832. *Id.*. Crust. Exp. sci. Morée, p. 47 (*Ichthyophilus o.*).
1881. Schioedte and Meinert., Naturh. Tidsskr., ser. 3, vol. xiii, p. 60, pl. iv, figs. 16–18 (*cephalotes*).
1902. Stebbing, Mar. Invest. S. Afr., vol. ii, p. 55 (*cephalotes*).
1914. Barnard, *loc. cit.*, p. 371 (*rhabdota*, non Koelbel).
1920. van Name, Bull. Amer. Mus. Nat. Hist., vol. xliii, p. 53, figs. 6–9 (*cephalotes*).
1921. Stebbing, Ann. Durban Mus., vol. iii, p. 23 (*armata*, non Dana).
1923. *Id.*, Fish. Mar. Biol. Surv. Spec. Rep., 3, p. 10, pl. xv (*Rosca rogans*).
1924. Monod, *loc. cit.*, pp. 436 (75) *sqq.* figs. (*cephalotes* and *rhabdota*, non Koelbel).
1925. Barnard, *loc. cit.*, p. 390 (*armata*, non Dana).
1926. Hale, Trans. Roy. Soc. S. Austr., vol. l, p. 206, figs. 4, 5, (*macleayii*).
1931. Monod, *loc. cit.*, p. 10, figs. 5–11 (references and synonymy).
1936. Barnard, *loc. cit.*, p. 165, footnote.
1937. Schuurmans, Stekhoven. Mem. Mus. Roy. Belg. (2), fasc. 9, p. 25, figs. 19–22.

Although Stebbing, in describing *Rosca rogans* in 1923, refers to the character of the incised pleurae of the pleon segments as distinguishing *Nerocila* from *Rosca*, the figure of his specimen corresponds so exactly with *Nerocila orbignyi* that there can be little doubt that he overlooked the incisions, which are often small and inconspicuous, on the first two pleurae (he says the "dissection of the mouth-organs in December fogs was unsuccessful").

There is in the South African Museum an exactly similar specimen, 25 mm. in length, with the last three peraeon segments broader than the anterior ones, but without any brood-plates (see Barnard, *loc. cit.*, 1936).

There are also two ♂♂, 25 and 26 mm. in length, with the inner ramus of uropod triangular, widening to the truncate distal margin. When the change to the ♀ stage occurs, the inner distal corner of the ramus shifts proximally and forms the tooth on the inner margin of the now nearly parallel-sided ramus.

To the list of hosts (Barnard, *loc. cit.*, 1925, p. 391) may be added the Snoek (*Thyrsites atun*).

Gen. *Anilocra* Leach.

1936. Barnard, Rec. Ind. Mus., vol. xxxviii, p. 165, fig. 7.

Certain differences between *capensis* and *leptosoma* are noted and figured.

Gen. *Codonophilus* Hasw.

1881. Haswell, Proc. Linn. Soc. N.S.W., vol. v, p. 471.
1883. Schioedte and Meinert, Naturh. Tidsskr., ser. 3, vol. xiii, p. 322 (*Ceratothoa*, non Dana, 1853).
1893. Stebbing, History of Crustacea, London, p. 354 (*Meinertia*).
1900. *Id.*, Mar. Invest. S. Afr., vol. i, p. 57 (*Meinertia*).
1910. *Id.*, Gen. Cat. S. Afr. Crust., p. 424 (*Meinertia*).
1926. Hale, Trans. Roy. Soc. S. Austr., vol. l, p. 223.
1931. Nierstrasz, *loc. cit.*, p. 131.

Hale's examination of the type of Haswell's *Codonophilus argus* has shown that it is a young form of *Meinertia imbricata*, and as Haswell's name antedates Stebbing's the generic name must be changed. *C. imbricata* remains the only species recorded from South African waters.

FAM. SPHAEROMIDAE.

HEMIBRANCHIATAE.

Gen. *Sphaeroma* Bosc.

Sphaeroma terebrans Bate.

1879. Hilgendorf, MB. Ak. Wiss. Berlin, 1878, p. 846, pl. iv, fig. 13 (*tuberculato-crinitum*).
1908. Budde-Lund, Voeltzkow's Reise., vol. ii, p. 304, pl. xvii, fig. 55 (*bigranulatum*).

1920. Barnard, *loc. cit.*, p. 358.
1921. Calman, Proc. Zool. Soc. London, p. 217.
1926. Baker, Trans. Roy. Soc. S. Austr., vol. l, p. 247, pl. xxxviii, figs. 11–13.
1931. Monod, Mem. Soc. Sci. nat. Maroc., vol. xxix, figs. 22 B, 42 A, 43 J, K, L.

Additional Localities.—Mouth of Mtunzini River, Zululand (H. W. Bell-Marley, 1926); Keurbooms River, Plettenberg Bay (K. H. B., Jan. 1931. ♂♂, ♀♀, juv. in water-logged timber at Whisky Creek, 5 miles from mouth, limit of tidal water); Knysna River, at tidal limit (K. H. B., Nov. 1938. ♂♂, ♀♀, juv.).

Distribution.—Mozambique (Hilgendorf), Zanzibar (Budde-Lund), Madras, Ceylon, Queensland, Florida, Brazil.

Remarks.—There can be little doubt that Hilgendorf's and Budde-Lund's species are synonymous. *S. retrolaeve* Rich., 1904, and *peruvianum* Rich., 1910, are very closely allied to one another, but appear to differ from *terebrans* in the broadly rounded or rounded-truncate telsonic apex.

Sphaeroma walkeri Stebb.

1920. Barnard, *loc. cit.*, p. 360.
1928. Baker, Trans. Roy. Soc. S. Austr., vol. lii, p. 49.
1931. Monod, *loc. cit.*, p. 36, figs. 5, 23 A, 43 A, B.
1936. Barnard, Rec. Ind. Mus., vol. xxxviii, p. 178, fig. 13, *b* (epistome).
1937. Monod, Mem. Inst. d'Egypte, vol. xxxiv, p. 13.

Distribution.—Ceylon, Suez, New South Wales.

Sphaeroma annandalei Stebb.

1911. Stebbing, Rec. Ind. Mus., vol. vi, p. 181, pl. x.
1936. Barnard, Rec. Ind. Mus., vol. xxxviii, p. 178, fig. 13, *c* (epistome).

Stebbing's description and the distinctness of this species from *walkeri* are fully confirmed.

Front margin of head with distinct raised rim. A short transverse ridge in the middle of peraeon segment 4, and a longer one on each of segments 5, 6, and 7, on the 6th and 7th segments the ridge tends to break up into a series of transversely elongate tubercles (see Stebbing's figure). Similarly the tubercles on the anterior portion of the pleon are transversely elongate. The apex of the telson is broadly rounded, with an upturned rim, but not so strongly marked as in *walkeri*. The arrangement of the tubercles on the telson is as Stebbing describes.

The epistome is wider across the arms (embracing the upper lip) than in *walkeri*, and the raised margins narrower (see Barnard, 1936, figs.). The inner lobe of maxilla 2 broad and subquadrangular as in the Indian examples. The inner plate of maxilliped is certainly narrower and more pointed than in *walkeri*, but the actual shape depends a lot on the view-point and whether the appendage is flattened under a cover-slip; Stebbing's figures of the maxillipeds of the two species are not, I think, strictly comparable. Up to 11 mm.

Locality.—Mouth of Mtunzini River, Zululand (H. W. Bell-Marley, 1926).

Distribution.—Port Canning, and Ganges Delta, India.

Gen. *Exosphaeroma* Stebb.

Exosphaeroma hylecoetes n. sp.

(Fig. 10.)

1902. Stebbing, Mar. Invest. S. Afr., vol. ii, p. 69 (*gigas*, non Leach).

1910. *Id.*, Gen. Cat. S. Afr. Crust., p. 428 (*gigas* part, non Leach, No. 81, A).

1914. Barnard, *loc. cit.*, p. 375 (*gigas* part, non Leach).

Integument matt, with minute scattered setules. Head with slightly thickened rim on sinuous front margin. Telson a little broader than long, more so in ♂ than ♀, sides in ♂ subtending an angle of about 60°, rather strongly convex, smooth, sides gently concave near the somewhat truncate apex, which is narrow in ♂ but considerably broader in ♀; ventral surface with low semicircular ridge, and in ♂ a shallow transverse groove.

Epistome triangular, bluntly pointed anteriorly, surface evenly convex. Maxilliped with 2nd–4th joints of palp lobed on inner margins.

Anterior peraeopods not differentiated, without natatory setae.

Uropod, rami lamellate, more so in ♂ than in ♀, inner ramus not quite reaching telsonic apex, outer reaching very slightly beyond, outer margin crenulate proximally, gradually becoming serrate distally, apex acute, a few minute serrulations on inner distal margin, outer margin of outer ramus and apices of both rami setulose, inner margin of outer ramus densely setose (furry); the Cape specimens have the outer ramus apically blunt, and only 3–4 crenulations distally on outer margin.

Up to 6·5 mm. (Keurbooms R.), 11·5 mm. (Cape Town).

Brownish or slaty-grey, with paler mottling, the most constant being patches in the mid-dorsal line on the pleon and base of telson.

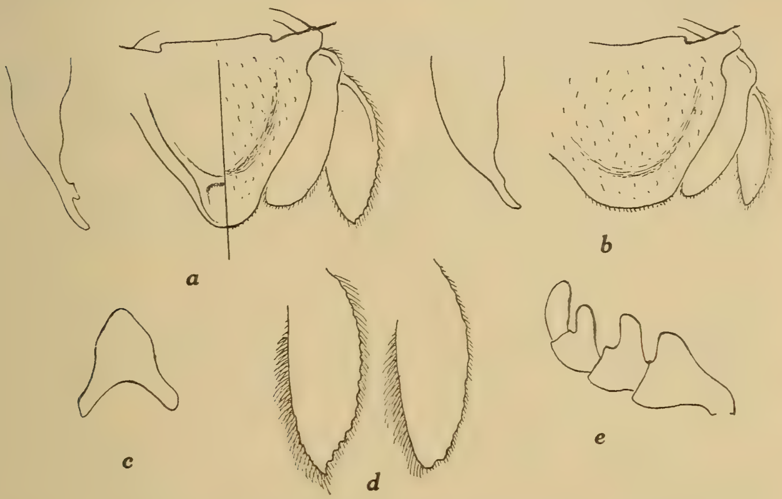

FIG. 10.—*Exosphaeroma hylecoetes* n. sp. *a*, telson and uropod, ♂, dorsal view on right, ventral on left, with diagrammatic sagittal section. *b*, telson, ♀, with section. *c*, epistome. *d*, outer ramus of uropod of Keurbooms River specimen (left) and Cape specimen (right). *e*, palp of maxilliped (setae omitted).

Localities.—Salt River, near Cape Town (W. F. Purcell, Jan. 1902, ♂♂, ♀♀, juv. 1½ miles from mouth, S.A.M. Reg. No. 9869); Keurbooms River estuary, Plettenberg Bay (K. H. B., Jan. 1931, ♂♂, ♀♀, juv. in water-logged timber in the tidal area, S.A.M. Reg. No. A7848); Buffalo River, East London (Stebbing; also coll. R. M. Lightfoot, 1914).

Remarks.—The telsonic apex in the larger Cape specimens is unusually thickened, more so in ♂ than in ♀. The palp of maxilliped and the peraeopods are of the *Exosphaeroma* type, but as Monod (*loc. cit.*, 1931, pp. 11 *sqq.*) points out, there is a series of species ranging from typical *Sphaeroma* to typical *Exosphaeroma* which makes a sharp differentiation of these two genera wellnigh impossible.

Like other estuarine and log-loving species, the integument of this species is usually more or less concealed under a coating of fine particles of foreign matter. Evidently Stebbing did not clean the specimens he examined, and consequently missed the characteristic serration on the outer rami of the uropods.

Exosphaeroma laeviusculum (Heller).

(Fig. 11, *a–c*.)

1843. Krauss, Südafrik. Crust., p. 65 (*jurinii*, non Audouin).
1868. Heller, Reise Novara, ii, Crust., p. 138, pl. xii, fig. 7.
1905. Hansen, Q.J. Microsc. Sci., vol. xlix, p. 117 (no opinion on generic status).
1914. Barnard, *loc. cit.*, p. 375 (*gigas* part, non Leach).

Integument nitidulous, with sparse and shallow punctae. Front margin of head with very feebly raised rim. Epistome with straight sides, apex triangular, surface evenly convex.

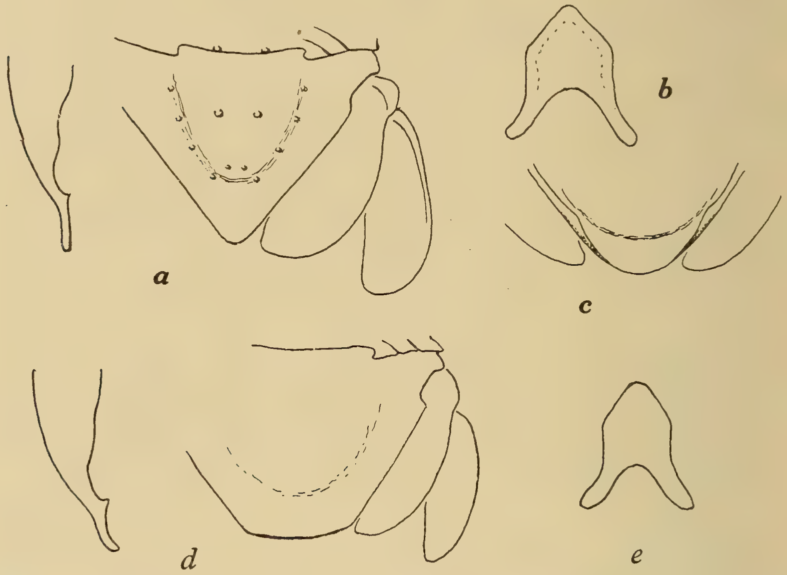

FIG. 11.—*Exosphaeroma laeviusculum* (Heller). *a*, dorsal view of telson and uropod, ♂, with section. *b*, epistome. *c*, ventral view of apex of telson, ♀. *Exosphaeroma truncatitelson* n. sp. *d*, telson and uropod, ♂, with section. *e*, epistome.

In ♂ a series of very low and inconspicuous granules on hind margin of each of peraeon segments, 2 submedian ones on hind margin of first division of pleon; 2 submedian on telson and a series of 5–6 in an arc on either side; in ♀ these granules obsolete.

Telson broader than long, in ♂ triangular, nearly straight sides subtending an angle of about 80°, apex acute; in ♀ sides convex and apex rather broadly rounded, in juvenile still more so; ventral surface with well-marked semicircular ridge. Distance between tips of inner rami of uropods about 3½ times in ♂, 2 in ♀, in length of telson.

Uropod in ♂ lamellate, apically rather broadly rounded, in ♀ narrower, outer ramus extending beyond telsonic apex.

Penial processes relatively short and stout.

Spines on outer margins of all peraeopods as long as width of the joints. Up to 10 mm.

Lighter or darker slaty-grey or bluish-black (according to habitat), more or less mottled.

Localities.—Port Nolloth (Prof. Stephenson, 1935); Lambert's Bay (Prof. Stephenson, 1938); Table Bay, Mouille Point, and Hout Bay, littoral (R. M. Lightfoot, 1896; J. Drury, 1914; K. H. B., 1914); Dyer's Island (J. Drury, 1915); Keurbooms River, Plettenberg Bay (K. H. B., Jan. 1931, coast near "Cathedral Rocks").

Distribution.—Java; but the "Novara" locality has never been confirmed by later records.

Remarks.—Through the kindness of the then (1914) Director of the Vienna Museum, I was enabled to examine the types of Heller's species (5 ♂♂, 1 ♀, 2 juv.). The very minute granules on the peraeon, pleon, and telson, which are only to be seen with certainty in a dried or semi-dried specimen, correspond exactly in the types and the Cape specimens. The largest Cape ♂♂ have the apex of the telson slightly more acute, and the rami of the uropods rather more broadly lamellate, but otherwise a side-by-side comparison reveals no differences.

The Lambert's Bay specimens are particularly smooth, only the submedian pair of granules on the telson being perceptible.

Exosphaeroma varicolor Brnrd.

1914. Barnard, *loc. cit.*, p. 379, pl. xxxii, C.
1926. Baker, Trans. Roy. Soc. S. Austr., vol. 1, p. 259.
1929. Hale, Crust. S. Austr., pt. 2, p. 276.

Distribution.—Baker says: "They [*Cymodoce unguiculata*] were taken . . . in 5 fathoms at Beachport, South Australia, accompanied by a species so close to *Exosphaeroma varicolor* that I hesitate to separate it." The South African and South Australian forms should, in my opinion, be directly compared before finally accepting their identity.

Exosphaeroma planum Brnrd.

1914. Barnard, *loc. cit.*, p. 380, pl. xxxii, F.

Locality.—Keurbooms River, Plettenberg Bay (K. H. B., Jan. 1931, 1 juv. from debris washed up on ocean beach); Port Nolloth (Prof. Stephenson, 1938).

Remarks.—In the original description it should perhaps have been stated that in juveniles the uropods do not reach to the telsonic apex. Even juveniles, however, are easily recognized by the depressed shape, the granulations and rugae, and the epistome. The smaller Californian species *amplicauda* (Stimpson) appears to be very much of the same general shape, but has tubercles on the peraeon segments; probably several other differences would appear if the two species were compared side by side.

Exosphaeroma truncatitelson n. sp.

(Fig. 11, *d*, *e*.)

Integument nitidulous, with sparse and shallow punctae. Rim of front margin of head very slightly thickened and raised only near the rostral point. Epistome with very slightly concave sides and bluntly pointed apex, surface evenly convex. No trace of any granules on peraeon, pleon, or telson.

Telson broader than long, apex broadly truncate, apical margin very slightly convex in ♂, nearly straight in ♀ and juv.; ventral surface with semicircular ridge. Distance between tips of inner rami of uropods 1·75 times in length of telson.

Uropod lanceolate, outer rami extending slightly beyond telsonic apex.

Penial processes relatively short and stout. Spines on the peraeopods as long as width of the joints.

Up to 8 mm. Biscuit colour, more or less speckled with greyish.

Locality.—Kleinmond, near Hermanus, Cape Province (K. H. B., Feb. 1927, ♂♂, ♀♀, juv.).

Remarks.—Both sexes of this form bear a close resemblance to the ♀ of *laeviusculum*, but are quite distinct from the ♂ of the latter species. Up to the present it has not been collected in any other locality.

Exosphaeroma pallidum n. sp.

(Fig. 12, *a–c*.)

Integument nitidulous, with rather numerous punctae. Front margin of head with raised sinuous rim. Epistome pentagonal, sides concave, surface flat or slightly concave, anterior margin projecting freely, with a deeper-lying bluntly triangular extension meeting the rostral point. Peraeon, pleon, and telson quite smooth.

Telson broader than long, triangular, sides subtending an angle of about 70°, apex rounded-truncate, dorsal surface evenly convex; ventral surface with semicircular ridge. Distance between tips of inner rami of uropods about 2·6 times in length of telson.

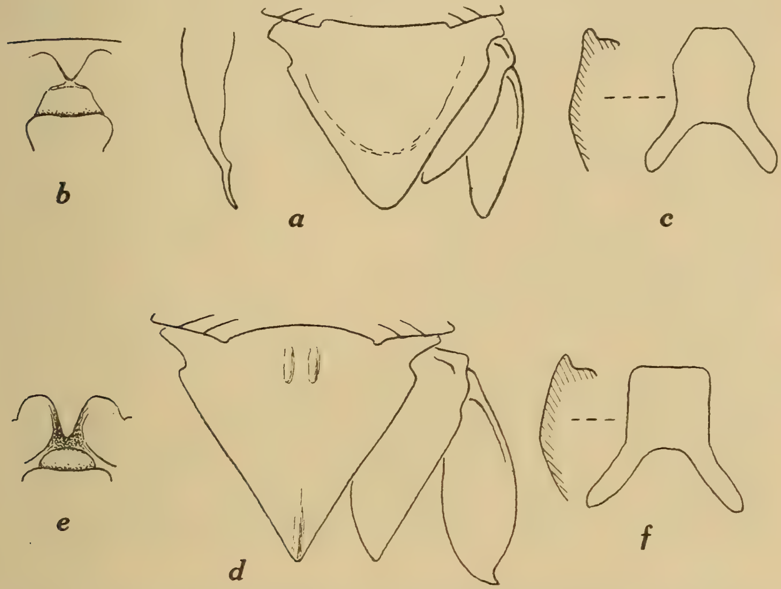

FIG. 12.—*Exosphaeroma pallidum* n. sp. *a,* telson and uropod, ♂, with section. *b,* frontal view of rostral point and epistome. *c,* epistome, with sagittal section.

Exosphaeroma antikraussi n. sp. *d,* telson and uropod, ♂. *e,* frontal view of rostral point and epistome. *f,* epistome, with sagittal section.

Uropods ovate, apices subacute, inner ramus not reaching level of telsonic apex, outer ramus extending to or very slightly beyond it.

Penial processes relatively short and stout.

Up to 13 mm. Colour (as preserved) uniform pale pinkish, eyes reddish.

Locality.—Woodstock Beach, Table Bay (R. M. Lightfoot, Apr. 1908, ♂♂).

Remarks.—The epistome has the somewhat shovel-like shape, with freely projecting front margin (or, in other words, a subapical transverse ridge) as is found in *antikraussi* and *kraussii.*

The late Mr. R. M. Lightfoot told me that the specimens were collected amongst seaweed and debris washed up on the beach (sandy) after a storm, and that when alive they were uniformly pale in colour. I have never collected it myself on any of the rocky portions of the foreshore around Table Bay.

Exosphaeroma kraussii Tattersall.

1910. Stebbing, Ann. S. Afr. Mus., vol. vi (Cat. S. Afr. Crust.), p. 428 (*lanceolatum*, non White).

1914. Barnard, *loc. cit.*, p. 375, pl. xxxii, D (synonymy).

Remarks.—Since my 1914 paper some specimens from St. Sebastian Bay, collected by the s.s. "Pieter Faure," have been found in the South African Museum, which are, without reasonable doubt, part of the lot (No. 132) sent to Stebbing by Dr. Gilchrist and recorded in 1910. I have always suspected that Stebbing's specimens were *kraussii*, and this is now confirmed.

The St. Sebastian Bay specimens have a more strongly granulate integument than the majority of examples, the micro-granulate texture being particularly noticeable on the posterior margins of the peraeon segments, and on the pleon and telson; but I have seen similar examples from Table Bay and Dyer's Island.

The shape of the epistome is constant, but in my description I omitted to mention an important feature of it: the front margin projects freely, and there is a deeper-lying rounded triangular portion which connects with the rostral point, as in *antikraussi* and *pallidum.*

Additional Localities.—(West coast) Port Nolloth and Lambert's Bay (Prof. Stephenson, 1938), Dassen Island; (south coast) Dyer's Island, Port Elizabeth, Port Alfred. The species therefore ranges, as at present known, from Lambert's Bay to East London.

Exosphaeroma antikraussi n. sp.

(Fig. 12, *d–f.*)

1914. Barnard, *loc. cit.*, p. 375 (*gigas-lanceolatum*, part).

Integument granulate, more strongly so than in the micro-granulate form of *kraussii* (*supra*). Rim of front margin of head slightly thickened. Epistome quadrate, sides straight, surface flat, anterior margin truncate, projecting freely and visible beyond the antennae in dorsal view, with a deeper-lying rounded extension connecting (or almost so) with the rostral point. Peraeon and pleon without any traces of tubercles. Telson broader than long, triangular, sides subtending an angle of about 70° in ♂, 75° in ♀, apex acute; dorsal surface with a pair of short and feebly raised ridges proximally, and an indistinct median keel distally (less strongly marked than in normal *kraussii*); ventral surface with semicircular ridge. Distance between tips (*outer* angles) of inner rami of uropods $1\frac{1}{3}$–$1\frac{1}{2}$ in length of telson.

Uropod, inner ramus parallel-sided, *inner* apical angle rounded, outer apical angle rectangular or slightly acute, reaching to level of telsonic apex, outer ramus ovate-lanceolate, proportionately broader in ♂ than in ♀, apex acute and uncinately curved outwards, extending slightly beyond level of telsonic apex.

Penial processes relatively short and stout.

Up to 8 mm. Pale buff or whitish, more or less speckled with grey, often the head and anterior four peraeon segments grey, the rest pale.

Localities.—Mouille Point, Cape Town (K. H. B., 1913, ♂♂, ♀♀); Oudekraal, near Camps Bay, west coast Cape Peninsula (Prof. T. A. Stephenson, 1934, 1 ♂); Reef Bay, Port Elizabeth (Prof. T. A. Stephenson, 1936, ♂♂, ♀♀).

Remarks.—This is the form mentioned in 1914 as having been considered by Dr. Tattersall as *lanceolatum* (White), but on which I preferred to suspend my own opinion pending confirmatory evidence. At a hurried glance it might be confused with *kraussii*. The epistome, however, is quite constant and distinct, and together with the uropods forms a ready means of distinguishing the two species.

Exosphaeroma gigas (Leach).

(Fig. 13, *a–f*.)

1900. Stebbing, Proc. Zool. Soc. London, p. 553, pl. xxxix (references and synonymy).
1909. Chilton, Subantarctic Islands, N.Z., vol. ii, p. 652 (part).
1918. Nierstrasz, Zool. Med., vol. iv, p. 123 (remarks under *calcareum*).
1925. Memoria Annual, 1924, Mus. Nac. Buenos Aires, pl. xxxv, fig. 1 (fig. of *lanceolatum* ex Giambiagi, Ann. Soc. Cient. Argent., 1925).
1931. Monod, Mem. Soc. Sci. nat. Maroc., vol. xxix, p. 69, figs. 23 L, 25 B, 36 A, 37 C, I.

In 1902 Stebbing took the view that it was better to keep *gigas* (Leach) and *lanceolata* (White) specifically separate, "although it may not be absolutely certain which of the forms Leach had before him."

It seems impossible to settle the matter without a direct appeal to the types (if extant), but I have endeavoured to place the South African forms, which hitherto have been regarded as *gigas-lanceolatum*, on a definite taxonomic basis. A comparison with a few specimens from New Zealand, given me by the late Dr. Chilton, and also some Tasmanian examples from the South Australian Museum, has been of considerable help. Although all the New Zealand examples were regarded by Chilton as *gigas*, I am of opinion that two distinct species should be accepted, and that the Tasmanian examples represent a third species.

The distinguishing characters are to be found (♂♂ in all cases) in the presence or absence of a frontal ridge on the head (mentioned by Stebbing, 1900, *loc. cit.*, p. 536), the epistome, the ventral surface of the telsonic apex, and the surface texture of the integument. The shape of the telson and the uropods, previously employed in descriptions, are of course also of diagnostic value.

The specimens from Auckland Is., New Zealand, a ♂ and a ♀ (with embryos) 21 mm., and a juvenile 14 mm. in length, are in agreement with Stebbing's Falkland Is. specimens (1900) in having a nearly straight frontal ridge on the head. Chilton also noticed this in his larger specimens. Stebbing's figures of the telson and epistome seem to have been drawn somewhat foreshortened; as both structures are convex a slight difference in the angle from which they are viewed may account for the small discrepancies between Stebbing's figures and mine.

The ratio of the length to breadth of telson is: 1 : 1·41 (♂), 1 : 1·57 (♀), 1 : 1·68 (juv.). The ratio of the distance between the tips of inner rami of uropods to length of telson is 1 : 2·4 (♂), 1 : 1·86 (♀), 1 : 1·6 (juv.). Thus the telson is relatively longer in the adult than in the young, and the apex is more broadly rounded in the ♀ and juv. than in the ♂.

On the ventral surface of the telson there is a feeble semicircular ridge separating the proximal portion of telson, in which the pleopods lie, from the distal portion.

As regards the epistome Stebbing draws a second line within the margin. In view of the Tasmanian form mentioned below, where there is a definite raised margin, this method of draftsmanship is ambiguous. In the present case, however, one may assume that in the Falkland Is. specimens the surface of the epistome was evenly convex, not sunken and concave in the middle.

Stebbing's description of the penial processes (on 7th sternite)

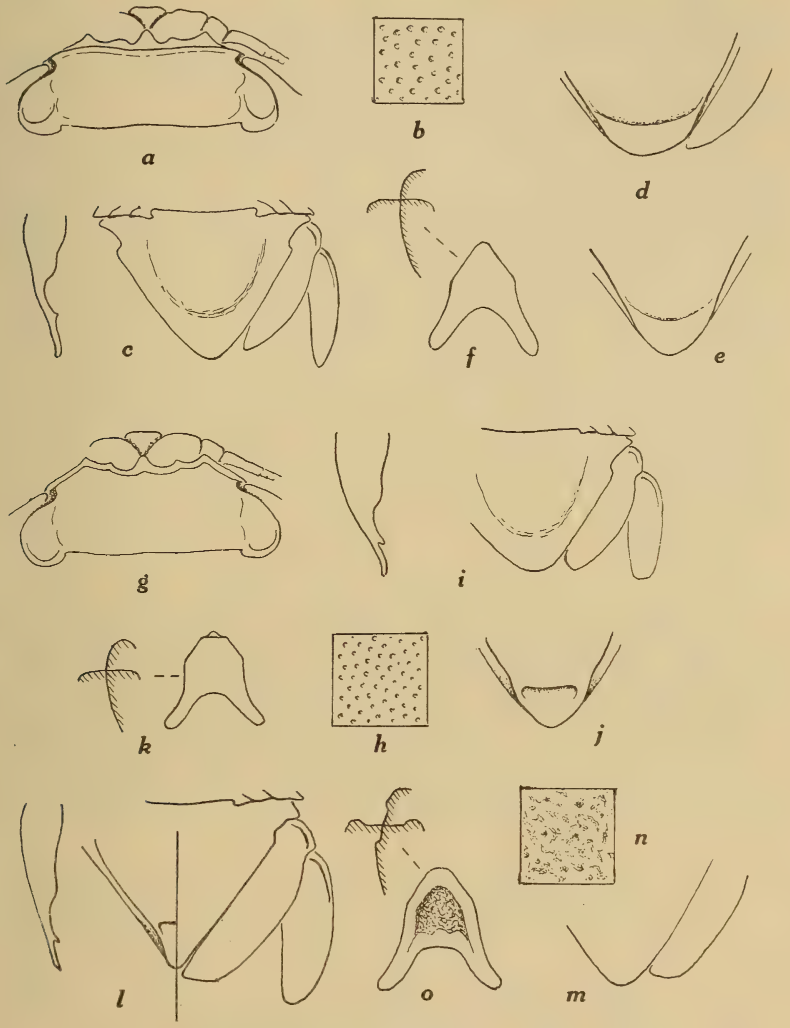

FIG. 13.—*Exosphaeroma gigas* (Leach). Auckland Is., New Zealand. *a*, dorsal view of head. *b*, portion of integument (1st peraeon segment). *c*, telson and uropod, ♂ (21 mm.), with section. *d*, ventral view of apex of telson, juv. (14 mm.). *e*, ventral view of apex of telson, ♂. *f*, epistome, with sagittal and transverse sections.

Exosphaeroma sp. Carnley Harbour, Auckland Is., and Dunedin, New Zealand. *g*, dorsal view of head. *h*, portion of integument. *i*, telson and uropod, ♂, with section. *j*, ventral view of apex of telson. *k*, epistome, with sagittal and transverse sections.

Exosphaeroma sp. Tasmania. *l*, telson and uropod, ♂ (26 mm.), dorsal view on right, ventral on left, with section. *m*, apex of telson, juv. (15 mm.). *n*, portion of integument. *o*, epistome, with sagittal and transverse sections.

as "about 4 times" as long as broad is not quite in accordance with his figure unless one measures the breadth very near the tip.

The surface of the integument is smooth and nitidulous, with shallow and moderately closely set punctae.

The following may serve as a diagnosis of this form: integument nitidulous, shallowly punctate; head with nearly straight transverse frontal ridge; epistome anteriorly more or less pointed, surface evenly convex; telson broader than long, evenly convex dorsally, apex rounded; the distance between the tips of inner rami of uropods slightly over twice in ♂, slightly less than twice in ♀, in length of telson; ventral surface of telson subapically with a low semicircular ridge; uropods apically subacute or narrowly rounded, the outer ramus extending beyond telsonic apex; penial processes relatively short and stout; outer margins of 2nd and 3rd joints and apex only of inner margin of 3rd joint of peraeopod 1 furry (inner margins of 4th–6th joints in all peraeopods furry); spines on outer margins of all peraeopods few and stout (less than width of joints).

Distribution. — Falkland Is. (Stebbing); Auckland Is., New Zealand (Chilton); Kerguelen.

No South African specimens have been collected which conform to the above diagnosis or resemble the above Auckland specimens. I have seen specimens from the Falkland Is. and Kerguelen (ex. Brit. Mus.) which agree entirely with the Auckland Is. specimens.

Although I leave the naming of the following two forms to some other carcinologist, I propose to outline briefly some of the characters distinguishing them from the above form which is regarded as *gigas*.

Carnley Harbour, Auckland Is., New Zealand, and Dunedin Harbour,
New Zealand (2 ♂♂ from each locality, don: Dr. Chilton).
(Fig. 13, *g–k*.)

13–14·5 mm. Integument nitidulous, with closer and stronger punctae; front margin of head with a slightly raised rim, sinuous, and not forming a straight transverse ridge; epistome anteriorly in ventral view apparently truncate, but with a triangular point which curves strongly dorsally to meet the rostral point, the longitudinal profile therefore strongly convex; telson broader than long, evenly convex dorsally, apex more narrowly rounded, the distance between tips of inner rami of uropods is 2·5–2·7 times in length of telson; ventral surface of telson with the semicircular ridge so well developed medianly as to form a definite transverse groove on its distal side;

uropods apically subtruncate, the outer projecting only very slightly beyond telsonic apex; penial processes more slender and longer relatively to length of animal.

Tasmania (2 ♂♂ and 1 juv., don: South Australian Museum).
(Fig. 13, *l–o*.)

26–27 mm., juv. 15 mm. Integument matt, with very shallow and irregularly vermiculate impressions; frontal margin of head as in the Carnley Harbour specimens; epistome bluntly pointed anteriorly, the central portion slightly sunken and surrounded by a gently raised rim; telson more depressed, broader than long, triangular, sides straight, subtending an angle of approx. 75°–78°, apex acute; distance between tips of inner rami of uropods about 12 times in length of telson; ventral surface of telson with transverse ridge and groove; uropods apically somewhat bluntly rounded, the outer extending beyond telsonic apex; penial processes relatively short and stout (as in *gigas*).

Exosphaeroma porrectum Brnrd.

1914. Barnard, Ann. S. Afr. Mus., vol. x, p. 382, pl. xxxii, E.

The ♀ is similar to the ♂ in sculpturing, but the telson does not project so far beyond the inner rami of uropods, the distal portion is not narrowed, though the apex is acutely pointed, and the outer rami of uropods are not so broadly lanceolate.

Additional Localities.—Port Elizabeth (Prof. T. A. Stephenson, 1936, 1 ♀); Lambert's Bay (Prof. T. A. Stephenson, 1938, 1 ♂).

Gen. *Pseudosphaeroma* Chilton.

1909. Chilton, Subantarc. Is., New Zealand, vol. ii, p. 653.
1931. Monod, Mem. Soc. Sci. nat. Maroc., vol. xxix, p. 73.

Pseudosphaeroma barnardi Monod.

1931. Monod, *loc. cit.*, p. 78; figs. 62–66, 67 A–D, 68–71.

Localities.—Hout Bay, in stream (Monod); Keurbooms River, Plettenberg Bay (K. H. B., Jan. 1931, ♂♂, ♀♀, juv. in water-logged timber at Whisky Creek, limit of tidal flow); estuary of Klip Drifts Fontein stream, Potteberg, Bredasdorp district (A. C. Harrison, May 1936); Palmiet River lagoon, Kleinmond (K. H. B., April 1937, under stones, swims on surface at night).

Zuzara furcifer Brnrd.

1920. Barnard, *loc. cit.*, p. 361; pl. xv, figs. 26, 27.

Juveniles of 4 mm. in length have a short blunt apical telsonic projection, and a blunt (truncate) process on 7th peraeon segment extending to end of the composite pleon segment.

Additional Localities.—Kleinmond, near Hermanus (K. H. B., February 1927, 1 ♂); Keurbooms River, Plettenberg Bay (K. H. B., January 1931, 2 ♂♂, 3 juv. from debris washed up on ocean beach).

Cymodoce valida (Stebb.).

1902. Stebbing, Mar. Invest. S. Afr., vol. ii, p. 67; pl. xii, A.

1914. Barnard, Ann. S. Afr. Mus., vol. x, p. 388; pl. xxxiii, C.

A young specimen, 9 mm. in length, is creamy-white in colour, with black spots arranged very nearly in the same pattern as in Stebbing's original figure, except that the largest and most conspicuous spot is not on the anterior part of the pleon, but on the base of the telson; a small ovate spot on inner ramus of uropod.

Cymodoce unguiculata Brnrd.

1914. Barnard, *loc. cit.*, p. 394, pl. xxxiv, B.

1926. Baker, Trans. Roy. Soc. S. Austr., vol. l, p. 259.

1929. Hale, Crust. S. Austr., part 2, p. 285.

Distribution.—Beachport, South Australia (Baker).

Parisocladus perforatus (M. Edw.).

1914. Barnard, Ann. S. Afr. Mus., vol. x, p. 402, pl. xxxii, fig. H.

Additional Localities.—(West coast) Port Nolloth and Lambert's Bay (Prof. T. A. Stephenson); (south coast) Dyer's Island (J. Drury), Port Alfred (Albany Mus.), East London (Prof. T. A. Stephenson, 1937).

Remarks.—In the ♀♀ from Lambert's Bay the telson, instead of having 2 submedian ridges or humps each with 1–2 minute points (Barnard, *loc. cit.*), has 2 pairs of submedian very distinct tubercles, and the 2 tubercles on the 4th pleon segment are also much more distinct than usual.

EUBRANCHIATAE.

Dynamenella dioxus Brnrd.

1914. Barnard, Ann. S. Afr. Mus., vol. x, p. 419; pl. xxxiv, fig. E.

Additional Localities.—Port Nolloth and Lambert's Bay (Prof. T. A. Stephenson, 1938).

Dynamenella scabricula (Heller).

1914. Barnard, Ann. S. Afr. Mus., vol. x, p. 411; pl. xxxv, fig. A.

Additional Localities.—(West coast), Port Nolloth (Natal Mus.), Lambert's Bay (Prof. T. A. Stephenson, 1938), to Table Bay and west coast of Cape Peninsula; (south coast), St James, False Bay and Keurbooms River, Plettenberg Bay (K. H. B.).

Dynamenella huttoni (Thomson).

1879. Thomson, Trans. N.Z. Inst., vol. xi, p. 204; pl. x, *a*, fig. 6.
1909. Chilton, Subantarc. Is., N.Z., vol. ii, p. 657 (comparison with *eatoni*).
1914. Vanhöffen, *loc. cit.*, p. 516, fig. 49 (*brunnea*).
1914. Barnard, *loc. cit.*, p. 415; pl. xxxv. B (*kraussi*).
1916. *Id.*, *loc. cit.*, p. 106 (corrigendum = *huttoni*).
1917. Nierstrasz, Zool. Med., vol. iii, p. 109.
1918. *Id.*, *ibid.*, vol. iv, p. 122; pl. ix; figs. 14, 15 (*kraussi*).
1931. Monod, Senckenbergiana, vol. xiii, p. 25.

Chilton's distinctions (based on Calman) between this species and *eatoni* are confirmed except the last one; if by the "sinuous transverse groove" is meant the suture between the 1st and 2nd pleon segments, I find this present in both species. The raised rim of the front margin of head in *eatoni*, and the shape of the animal (both juv. and adult) are clearly marked distinctions. In *huttoni* the body is nearly parallel-sided and very convex, the side-plates being nearly vertical, the height of the body half the width (cross-section semicircular). The slot at end of telson is proportionately narrower in *huttoni* than in *eatoni*.

I have seen South African specimens up to 18 mm. in length.

Monod remarks on the curious fact that *eatoni* occurs at Kerguelen and South America, whereas *huttoni* occurs in South Africa and New Zealand. If *brunnea* be proved (by comparison of Vanhöffen's types) to be the same as *huttoni*, the distribution becomes even more curious.

Localities.—As shown by additional records the species occurs along the whole South African coast from Port Nolloth, Lambert's Bay, and Table Bay (Melkbos Strand) to Natal.

Distribution.—New Zealand, Chatham Is., Kermadec Is.; St Paul Is. (Indian Ocean) (*brunnea*).

Dynamenella macrocephala (Krauss).

1914. Barnard, *loc. cit.*, p. 418, pl. xxxv, C.

In adult ♂ the 7th peraeon segment is noticeably longer in middle line than the preceding segments, with convex hind margin, and is slightly gibbous, overhanging base of pleon.

This species is further distinguished from *huttoni* by having a slightly raised rim on the front margin of head.

Additional Localities.—Port Elizabeth (Prof. T. A. Stephenson, 1936); East London (Prof. T. A. Stephenson, 1937).

Dynamenella ovalis Brnrd.

1914. Barnard, *loc. cit.*, p. 418, pl. xxxv, D.

This species has a very slightly raised rim on front margin of head. The integument is a little more strongly shagreened or microgranulate than in *eatoni*, but in spite of this and the feeble rim on the head, there is a possibility that *ovalis* should be regarded as merely a dwarf form of *eatoni*.

Additional Localities.—Mouille Point and Oudekraal (west coast of Cape Peninsula); Still Bay, East London.

Dynamenella australis Rich.

1914. Barnard, *loc. cit.*, p. 414, pl. xxxv, E.

This species seems to be rare, as since 1914 I have only seen 2 ♀♀ from Sea Point (K. H. B.), and 8 specimens from Lambert's Bay (Prof. Stephenson, 1938). As Miss Richardson pointed out, the ♀ does not differ in the ornamentation of the pleon from the ♂, the granules and the prominent tubercle in front of the apical notch being equally well developed.

Dynamenella australoides n. sp.

(Fig. 14.)

Body nearly parallel-sided, convex, glabrous; head, peraeon and anterior part of pleon with very feeble granulation and rugae (best seen when the specimen is partially dried). Posteriorly the granules become slightly more distinct. Telson distinctly granulate-tuberculate, but the arrangement differing from that in *australis*, no prominent median tubercle immediately in front of the apical notch.

Epistome wider than in *australis*, and with evenly sinuous margins, anteriorly more pointedly produced than in *huttoni*.

Uropod, inner ramus sinuous and slightly narrowing apically as in *australis*, but with less acute apex; outer ramus oblong-oval, with bluntly rounded apex (not ovate with subacute apex as in *australis*).

9 × 5 to 10·5 × 5·5 mm. Reddish or greyish brown, more or less mottled, the granules on telson and uropods pale.

Locality.—St. James, False Bay, littoral (Prof. T. A. Stephenson, August 1936, ♀♀).

Remarks.—This species on a cursory glance looks like *huttoni*, but is easily distinguished (especially if dried) by the granules on the telson; it resembles *australis* in the shape of the inner ramus of uropod, but differs in the shape of the outer ramus; the sculpturing of the telson is different, and the body is not setose.

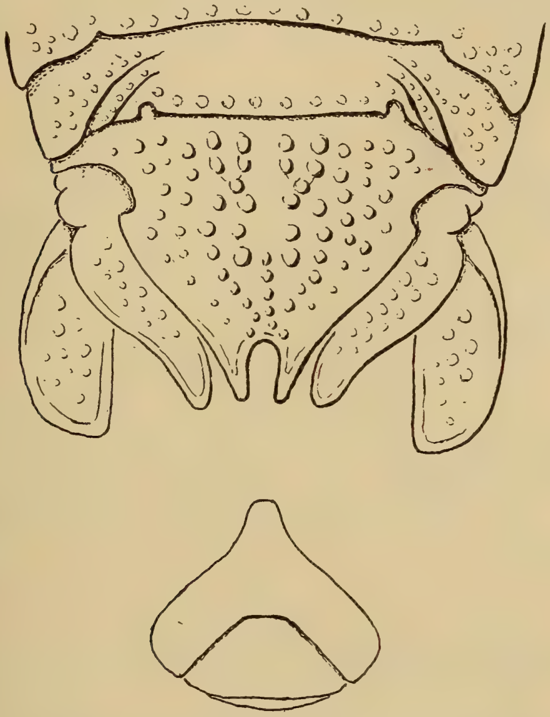

FIG. 14.—*Dynamenella australoides* n. sp. 7th peraeon segment, and pleo-telson; epistome.

Dynamenella taurus n. sp.

(Fig. 15.)

Head strongly bigibbous, front descending steeply to the rim-like anterior margin, rostral point blunt, meeting the epistome.

Peraeon broad, nearly parallel-sided, markedly convex, but the height not half the width (2½ times in the width), segments smooth and unsculptured, segment 7 rather prominently convex in centre;

epimera very broad, measured ventrally to insertion of peraepods about $\frac{1}{4}$ total width of segment (distance between insertions of the two peraeopods on a segment half the total width of the segment).

Telson triangular, apex narrowly truncate, ventrally notched, but notch not showing in dorsal view, surface strongly convex, with two rounded ridges.

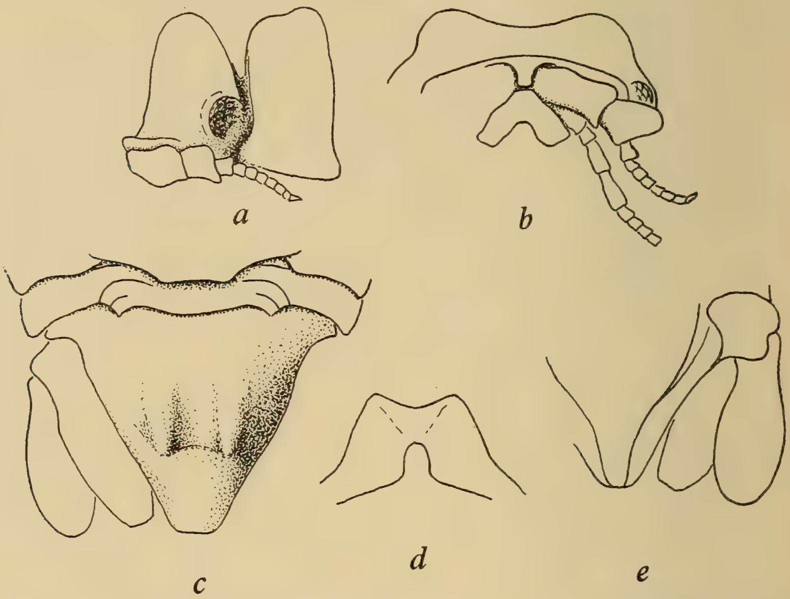

Fig. 15.—*Dynamenella taurus* n. sp. *a*, lateral view of head, 1st peraeon segment, and 1st antenna. *b*, ventral view of head and epistome (flagellum of antenna 2 not completely drawn in). *c*, dorsal view of 7th peraeon segment, pleotelson, and uropod. *d*, posterior view of telson. *e*, ventral view of apex of telson.

First antenna, 1st and 2nd peduncular joints robust, flagellum short, 6–7-jointed. Second antenna, flagellum 12–14-jointed.

Uropod, inner and outer rami broadly oval, apices rounded, extending to, or the outer ramus slightly beyond, telsonic apex.

6 × 4 mm. Reddish or pinkish, with a more or less conspicuous dark-margined, pale, hourglass-shaped dorsal patch on peraeon, the projecting anterior corners of 1st and 2nd peduncular joints of first antennae, the lateral margins of the 1st peraeon segment (both dorsally and ventrally), and the peduncle and outer ramus of uropod chalky white; legs pale, with a brownish mark at base of 2nd joints near insertions; apices of mandibles also white.

Localities.—East London (Prof. T. A. Stephenson, July 1937, 3 immature specimens); Port Nolloth (Prof. Stephenson, Aug. 1938, 1 immature specimen).

Remarks.—A very distinct species, with an even more gibbous and bull-like head than *macrocephala*; hence the specific name. Distinguished by the oblong-oval shape from *navicula*. The coloration also appears to be distinctive.

Dynamenella navicula n. sp.

(Fig. 16.)

Body boat-shaped, in dorsal view nearly symmetrically lenticular, in lateral view strongly convex; the legs can be completely withdrawn within the margins. Surface smooth and glabrous.

Head (♀) strongly gibbous dorsally, less strongly so in the juveniles. Epimera on segments 2–7 faintly demarcated.

Pleon segment 1 not concealed, though only faintly indicated medianly. No ornamentation on any of the pleon segments.

Telson strongly convex, triangular with truncate apex, the apical margin very feebly concave, with scarcely any groove ventrally.

First antennae, 1st and 2nd joints stout, with a few short plumose setae on the anterior surface, 3rd joint short and narrower; flagellum 6-jointed, the last 3 or 4 joints with sensory setae. Second antennae, flagellum 9-jointed.

Epistome with short quadrangular projection meeting the apically truncate rostral point which separates the bases of the 1st antennae.

Marsupial lamellae overlapping in middle line, brood developed in internal pouches.

Third pleopod with unjointed outer ramus. Fourth and fifth pleopods with strong pleats on both rami.

The uropods can lie horizontal, or can be folded vertically so that when the animal is grasping a stem of seaweed the outer edges of the uropods are applied to the seaweed, leaving a terminal gap through which water can enter to the pleopods: a groove on the ventral surface of the telsonic apex is thus unnecessary. When horizontal, the inner apex of inner ramus almost reaches the telsonic apex, outer ramus much smaller, oval.

5 × 2·25 mm. As preserved (after about one month in formalin) dull crimson (probably brighter in life), with faint pale patches dorsally on the peraeon segments, uropods pale, legs pale with grey dendritic dots, eyes black.

Locality.—Port Elizabeth, amongst a miscellaneous lot of Amphipods and Isopods collected from seaweed (Prof. T. A. Stephenson, 1936, 2 ovig. ♀♀, 2 juv.); East London (Prof. T. A. Stephenson, 1937, 1 ovig. ♀).

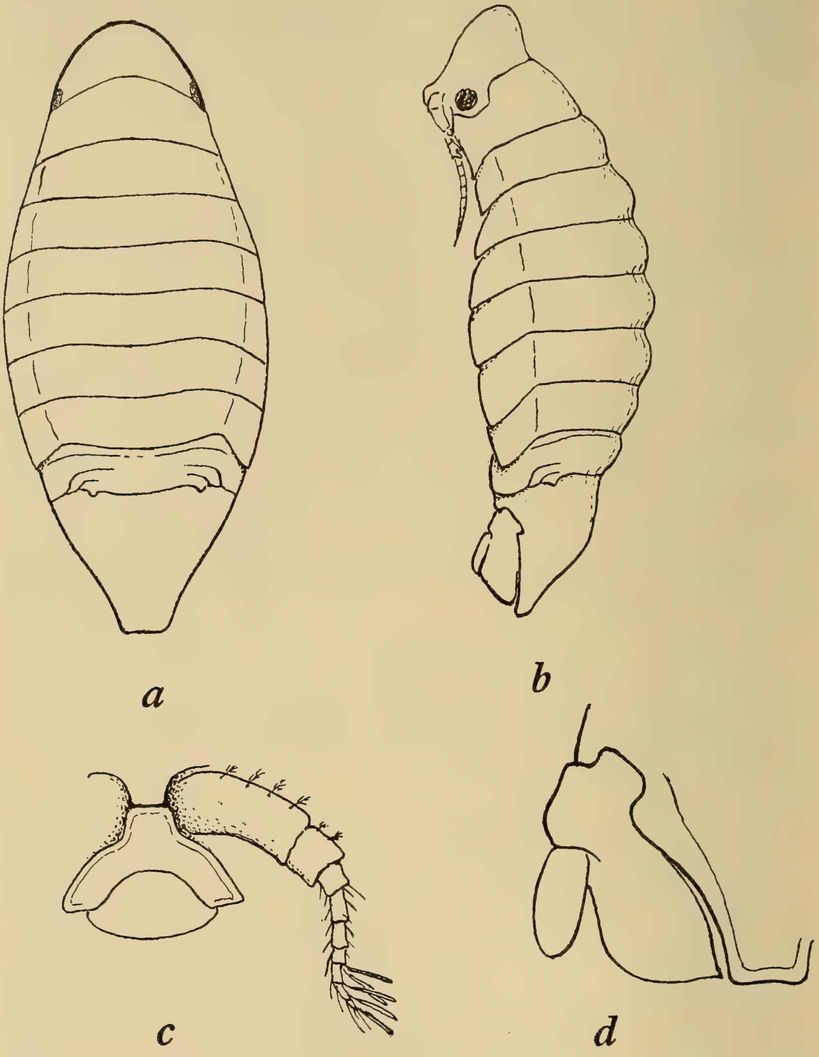

Fig. 16.—*Dynamenella navicula* n. sp. *a, b,* dorsal and lateral views of whole animal. *c,* epistome and 1st antenna. *d,* ventral view of apex of telson and uropod.

Remarks.—It is rather unfortunate that no ♂ of this noteworthy little Sphaeromid is present. It would not be surprising if the head of the ♂ were found to be even more prominent than in the ♀. A swollen head, though less developed and without any marked sexual dimorphism, is found in two other South African Sphaeromids: *Dynamenella macrocephala* (Krss.) and *Cymodoce amplifrons* (Stebb.): and a comparison is invited by Baker's figure of an unnamed and undescribed Sphaeromid from the Gt. Barrier Reef (1926, Tr. Roy. Soc. S. Austr., vol. l, pl. 47, figs. 10, 11, explanation, p. 279).

The smaller juvenile, 2·3 mm. in length, although scarcely differing in size ($\frac{1}{12}$ inch) from Stebbing's specimen of *Cymodocella algoense* (*cf.* Barnard, Ann. S. Afr. Mus., vol. x, p. 421, 1914), shows no resemblance, the relative lengths of the telson and uropods being as in the adult.

Although not found *in situ*, there can scarcely be any doubt that this little boat-shaped Isopod lives on seaweed, and by closely examining handfuls of weed future collectors might be rewarded by the discovery of the exact habitat, and also the male.

PLATYBRANCHIATAE.

Artopoles natalis Brnrd.

(Fig. 17, *a–c*.)

1920. Barnard, *loc. cit.*, p. 377.

This opportunity is taken to give a figure of this Sphaeromid. The rostral point is small and blunt; ventrally it is pinched in to form a slight median ridge which connects with the spiniform anterior process of the epistome.

Stathmos n. g.

Body oblong, moderately depressed, the side-plates broad and nearly horizontal, margins not ciliate. Head laterally enclosed in 1st peraeon segment. Peraeon segment 7 not quite as wide as 6th, but forming part of the lateral margins. Telson at base much narrower than anterior portion of pleon, triangular. Epistome projecting in front, visible in dorsal view. First 2 joints of antenna 1 expanded. Fourth to 6th joints of maxilliped inwardly produced. Peraeopods normal, the hinder ones becoming slightly more slender; the anterior 3 pairs with rather long spine-setae (not natatory plumose setae). Inner ramus of pleopod 1 almost twice as long as (basally) wide. Both rami of pleopod 3 with plumose setae, the outer ramus 2-jointed. Both rami of pleopods 4 and 5 without transverse folds, the outer rami 2-jointed, feebly setose. Uropods not reaching telsonic apex, but both rami well developed.

Stathmos coronatus n. sp.

(Fig. 17, *d–k*.)

Female.—Surface minutely granulate. Head with small rostral point, slightly raised front margin, 2 low rounded submedian tubercles, and a low rounded transverse ridge between the eyes. Each of the

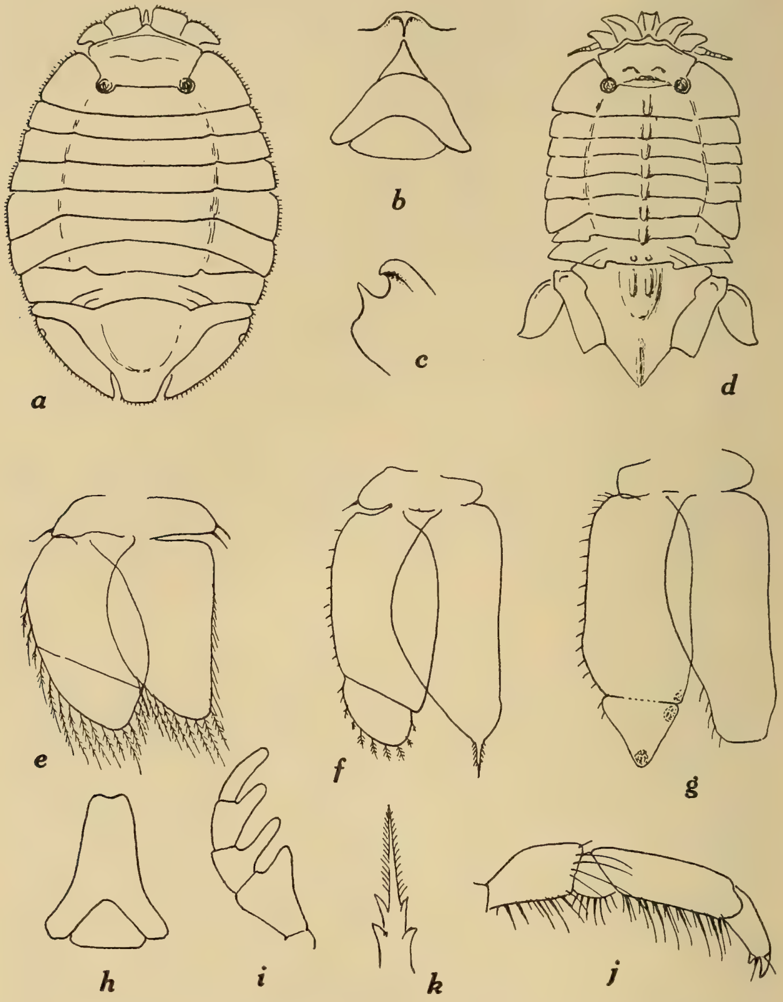

Fig. 17.—*Artopoles natalis* Brnrd. *a*, whole animal. *b*, *c*, ventral and lateral views of epistome and rostral point.
Stathmos coronatus n. g., n. sp. *d*, whole animal. *e*, *f*, *g*, pleopods 3, 4, and 5 respectively. *h*, epistome. *i*, palp of maxilliped (setae omitted). *j*, peraeopod 1. *k*, spine from inner apex of 5th joint of peraeopods 5–7.

peraeon segments with a low median longitudinal ridge, ending on the hinder segments in a slightly projecting tubercle. Anterior portion of pleon with 2 slight submedian tubercles. Telson triangular, apex acute, margin slightly concave where the inner rami of uropods abut against it, 2 faint submedian keels proximally, passing into a low median keel distally.

Epistome projecting conically in front, apex truncate, ventrally smooth, dorsally grooved between 2 ridges which converge towards the rostral point on head.

Antenna 1, first 2 joints triangularly expanded, the antero-distal angles sharp, an oblique ridge on dorsal surface of 1st joint, 3rd joint small, flagellum 7-jointed. Antenna 2, flagellum 10–11-jointed, extending to end of 1st peraeon segment. Maxilliped, 4th–6th joints inwardly expanded, 4th rather broadly, 5th and 6th narrowly.

Peraeopods normal, the hinder ones, especially the 7th, more slender than the anterior ones; the 3 anterior ones with rather long simple spine-setae on lower margins of 4th–6th joints.

Pleopod 1, inner ramus subtriangular, nearly twice as long as wide; 3 coupling-spines on peduncle of both pleopods 1 and 2. Pleopod 3, both rami with plumose setae, outer ramus 2-jointed, 2 coupling spines on peduncle. Pleopod 4, outer ramus 2-jointed with a few short setae on outer margin, and some short plumose setae around apex; inner ramus non-setose, but with a single rather short and stout plumose seta on apex. Pleopod 5, outer ramus 2-jointed, the suture somewhat indistinct in the middle, outer margin with 2 short setae; inner ramus apically truncate, with a few short setae on outer margin distally.

Uropods, not nearly reaching telsonic apex, inner ramus subquadrangular, apex truncate, slightly emarginate, outer ramus ovate-lanceolate, apex turned outwards.

6 (not incl. epistome) × 3·5 mm. White, eyes black.

Locality.—Oudekraal, near Camps Bay, west coast of Cape Peninsula (Prof. T. A. Stephenson, 1934, littoral, 1 non-ovigerous ♀).

σταθμος = a cattle-pen (kraal).

Fam. ASTACILLIDAE.

Gen. *Arcturella* Sars.

1925. Monod, Bull. Soc. Sci. nat. Maroc., vol. v, p. 76 (validity of genus).

Arcturella brevipes Brnrd.

(Fig. 19.)

1920. Barnard, *loc. cit.*, p. 396, pl. 16, fig. 27.

Further specimens from a specimen of *Gorgonia albicans* from Table Bay, ♀ up to 11 mm. in length, 3·75 mm. in width.

One immature ♂, 6 mm. in length, has the 4th peraeon segment 1·3 mm. in length and just under 1 mm. in greatest width. In dorsal view this segment is somewhat bottle-shaped, the anterior quarter being narrower and forming the neck; the width across posterior margin is much less than that of segment 5. There are 2 small rounded tubercles in the mid-dorsal line.

FAM. IDOTEIDAE.

Cleantis natalensis Brnrd.

1925. Barnard, *loc. cit.*, p. 394.
1936. *Id.*, Rec. Ind. Mus., vol. xxxviii, p. 186, fig. 17.

First described from juveniles which probably reached the Natal coast in drift-weed by the agency of the Mozambique current. The adult, and the tubular case it inhabits, are described in the second paper quoted above.

Distribution.—Bay of Bengal.

Synidotea variegata Cllge.

1917. Collinge, Rec. Ind. Mus., vol. xiii, p. 2, pl. i.
1924. Chilton, Mem. Ind. Mus., vol. v, p. 891, fig. 10 and pl. lx, fig. 6.
1927. Omer-Cooper, Tr. Zool. Soc. Lond., vol. xxii, p. 205 (? *hirtipes*).
1935. Barnard, Rec. Ind. Mus., vol. xxxvii, p. 313.
1936. *Id.*, *ibid.*, vol. xxxviii, p. 185, fig. 16.

A young specimen has been compared with Indian specimens, and appears to agree in all respects.

Locality.—Port Elizabeth, amongst seaweed (Prof. T. A. Stephenson, 1936, 1 juv.).

Distribution.—Coasts of India and Ceylon; Suez Canal.

Paridotea ungulata (Pallas).

1910. Stebbing, Gen. Cat. S. Afr. Crust., p. 433.
1914. Barnard, Ann. S. Afr. Mus., vol. x, p. 430.

Additional Localities.—(West coast) Walfisch Bay to Table Bay; (south coast) False Bay to East London.

Paridotea rubra Brnrd.

1914. Barnard, *loc. cit.*, p. 426, pl. xxxvii, fig. A.

Additional Localities.—Port Nolloth and East London (Prof. T. A. Stephenson).

Glyptidotea lichtensteinii (Krss.).

1910. Stebbing, Gen. Cat. S. Afr. Crust., p. 434.

Additional Localities.—Port Nolloth and East London (Prof. T. A. Stephenson).

Gen. *Engidotea* Brnrd.

1914. Barnard, Ann. S. Afr. Mus., vol. x, p. 203.

The definition of the genus requires a slight modification: the side-plates on segments 2 and 3 in the ♀ are not as long as their segments, thus resembling *Paridotea*. In fact these two side-plates are not as long as the length of their segments in the ♂ if the length of the segment be taken in the mid-dorsal line; it is only the peculiar intersegmental notching which develops in the ♂, and bevels off the postero-lateral corners of the segments, which permits the original statement to be regarded as correct.

Juveniles and females are typical *Paridotea*, as regards the side-plates, and the two genera are certainly very close. On account of the sexual dimorphism I am inclined to let *Engidotea* stand.

Engidotea lobata (Miers).

(Fig. 18.)

1881. Miers, J. Linn. Soc. Lond., vol. xvi, p. 57, pl. ii, figs. 8, 9 (♂).

1914. Barnard, *loc. cit.*, p. 204, pl. 17, C (♂).

Figures of both sexes are given here to show the different shapes. The telson is not quite so widely notched in females and juveniles. The coloration is remarkable. The mid-dorsal pale line, expanding into an oval spot on segments 1, 4, and 7, is characteristic of all specimens, from 4 mm. upwards, which I have seen, though it fades in alcohol. The margins of the peraeon segments are pale, especially around the postero-lateral corners. In the ♂ these corners become bevelled off as growth proceeds, but the pale margin remains narrow. In the ♀, however, no structural alteration takes place, but the pale margin becomes a broad, more or less triangular, pale patch at the postero-lateral corners. Consequently when a fresh female is placed on a pale background, the coloration produces the effect of incised lateral margins simulating the actually incised margins in the ♂.

Length of ovig. ♀ 17 mm., greatest width (across 3rd peraeon segment) 5 mm. The ground colour may be deep maroon, greenish, brown, or buff according to the colour of the seaweed and other surroundings amongst which the animals live.

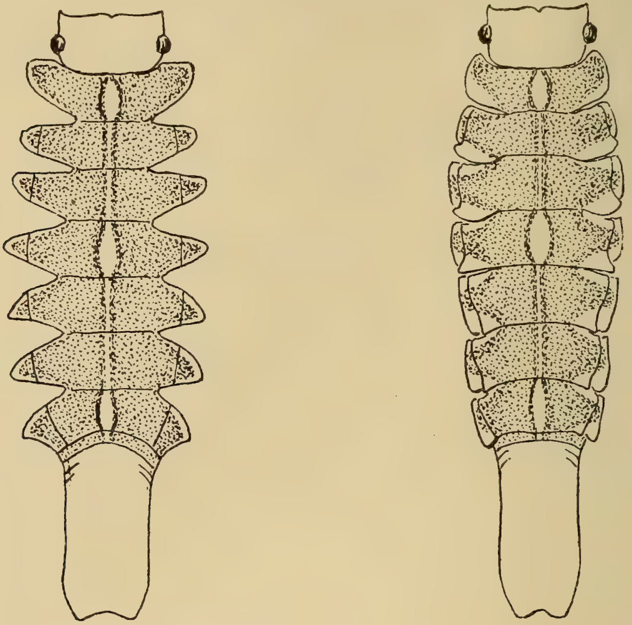

Fig. 18.—*Engidotea lobata* (Miers), showing how the morphological alteration in the male (left) follows the line of demarcation between the pigmented and unpigmented areas in the female (right). The pigmentation on head and telson not shown.

Additional Localities.—St. James and Buffels Bay (False Bay) (K. H. B., 1914, 1915); Sea Point and Melkbos Strand (Table Bay) (K. H. B., 1913 and 1927); Port Elizabeth (Prof. T. A. Stephenson, 1936, 1 ovig. ♀); Lambert's Bay (Prof. T. A. Stephenson, 1938, 1 ♂, 2 juv.).

Fam. STENETRIIDAE.

Gen. *Stenetrium* Hasw.

1920. Barnard, *loc. cit.*, p. 398 (references).

1925. Monod, *loc. cit.*, p. 238.

Stenetrium bartholomei n. sp.

(Fig. 19.)

Very like *diazi* Brnrd. at first sight, but with the following differences. Rostrum triangular, as long as basal width, apex subacute. Ventral keel with forwardly directed point on each of segments 1–3, and backwardly directed point on segments 6 and 7, obsolete on segments 4 and 5. Antenna 1, 2nd joint shortest, $\frac{1}{2}$ length of 1st, 3rd $\frac{2}{3}$ length of 1st. Peraeopod 1, ♂, elongate, 2nd joint longer than 3rd–5th together, slender at base and without tooth, 6th joint $\frac{2}{3}$ length of 2nd, broadly subtriangular, palm transverse, defining tooth strong, palm with one rather long slender tooth and 3 smaller teeth, finger robust, overlapping and closing down on inner side of palm, apex subacute; in ♀ as in *diazi.* Pleopod 1 as in *diazi* but outer margins of rami less angular.

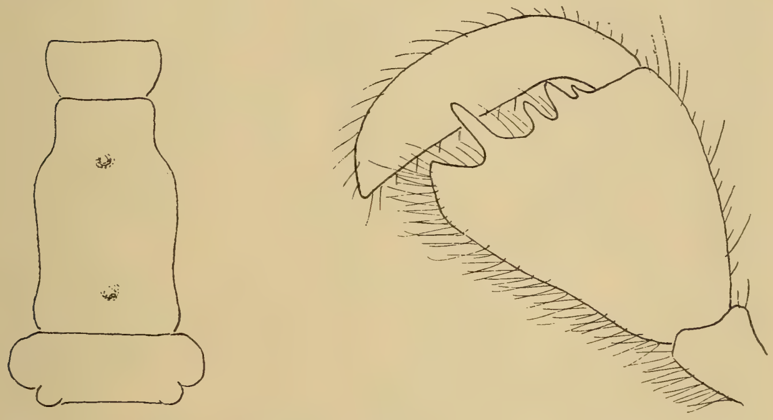

Fig. 19.—*Arcturella brevipes* Brnrd. (left). Dorsal view of 3rd–5th peraeon segments of immature ♂.
Stenetrium bartholomei n. sp. (right). Hand of peraeopod 1.

♂ 5·5 mm., ♀ 6·5 × 3 mm., length of peraeopod 1 (base of 2nd joint to palm) 5 mm. Creamy-white, with greyish-brown mottling, chiefly on lateral corners of head, a small medio-dorsal spot on peraeon segments 2–7, and the anterior half or two-thirds of the pleon, the latter with pale apex, and pale lateral and medio-dorsal spots, eyes dark.

Locality.—Still Bay and Port Elizabeth, littoral (Prof. T. A. Stephenson, 1932, 1 ♂, 1 ovig. ♀, 9 juv., and 1936, 1 ♂, 1 ♀ respectively).

Stenetrium syzygus n. sp.

(Fig. 20.)

Body nearly parallel-sided, dorsally smooth, but the hinder peraeon segments feebly grooved transversely, surface finely hirsute.

Head with antero-lateral angles acute, but not strongly produced; rostrum prominent, acute. Eyes reduced to 3–4 separate ocelli. Antero-lateral angles of peraeon segment 1 not prominent, nor acute. Ventral keel not prominent on any of the segments, distinct on segments 1 and 2, but not raised into processes or denticles. Pleon slightly longer than broad, the anterior 2 segments distinct.

Antenna 1 short, scarcely as long as length of head, and not extending beyond 4th peduncular joint of antenna 2, flagellum apparently composed of only one joint. Antenna 2, 1st joint not produced on outer apex, scale on 3rd joint short and broad, 6th joint slightly longer than 5th, flagellum longer than peduncle, multi-articulate. Mouth-parts normal; 2nd joint of maxilliped not so elongate as in *crassimanus* Brnrd. (1914, pl. xx).

Peraeopod 1 not elongate, outer apex of 3rd joint blunt, of 4th acute, 6th short and broad, outer margin strongly convex, inner margin straight, palm transverse, with stout defining spine at angle, outer margin with dense fringe of long setae curving over on to inner surface. Peraeopods 2–7 biunguiculate.

Penial processes on 7th peraeon segment curving towards one another, apices nearly touching.

Pleopod 1 fused, peduncles very short, rami elongate ovate. Pleopod 2, ♂, normal, outer ramus 2-jointed, 2nd joint short, with one strong subapical seta, inner ramus with apical setae, and a short subapical appendage. Pleopod 3, outer ramus operculiform, 2-jointed, inner ramus shorter, narrow, with a few apical setae. Pleopod 4, outer ramus narrow, 2-jointed, apically incurved, inner ramus oval, shorter and broader. Pleopod 5 with a single ovate ramus. Uropods, peduncle short, outer ramus shorter than inner, both with simple setae.

6 × 1·5 mm. Creamy-white, ocelli faintly reddish.

Locality.—Still Bay (Prof. T. A. Stephenson, 1932, ovigerous and non-ovigerous specimens).

Remarks.—The reduction of the eyes to 3 or 4 feebly pigmented ocelli gives this Isopod the appearance of a deep-sea form; it was, however, collected under rocks and among worm-tubes, ascidians, etc., in the littoral zone. Except for the eyes it is a normal

Stenetrium, though the peduncles (fused) of the 1st pleopods are unusually short.

There is one most remarkable feature of these specimens. In all of them the pleopods are of the same structure characteristic of the ♂ of *Stenetrium*, but some of the specimens have well-developed brood-plates and carry ova or embryos. This extraordinary fact is confirmed by Dr. Th. Monod (in litt. 23/10/35), to whom I had forwarded specimens.

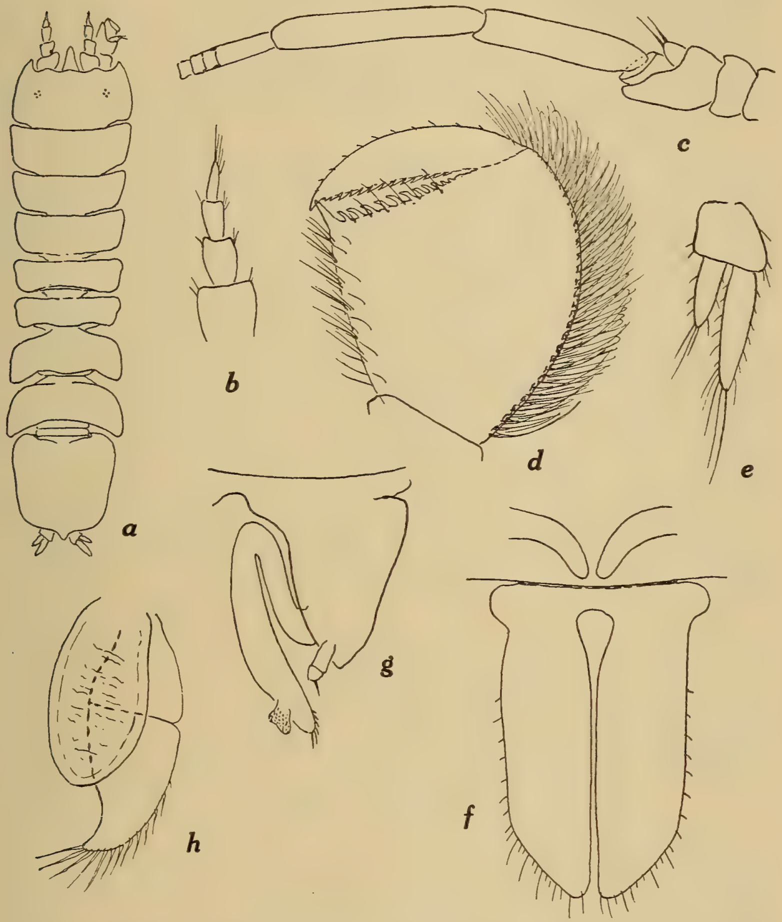

FIG. 20.—*Stenetrium syzygus* n. sp. *a*, whole animal. *b*, antenna 1. *c*, antenna 2. *d*, hand of peraeopod 1. *e*, uropod. *f*, penial processes of 7th sternite, and 1st pleopods. *g*, pleopod 2. *h*, pleopod 4.

FAM. JAERIDAE.

Gen. *Austrofilius* Hodgson.

1910. Hodgson, Nat. Antarct. Exp., vol. v, p. 51.
1914. Vanhöffen, *loc. cit.*, p. 554.

Austrofilius serrata (Brnrd.).

?1914. Vanhöffen, *loc. cit.*, p. 554, fig. 81 (*Austrofilius furcatus*, non Hodgson).
1914. Barnard, *loc. cit.*, p. 433, pl. xxxviii, A (*Jaera s.*).

I have a strong suspicion that Vanhöffen's Simonstown material and my *Jaera serrata* are the same species; possibly the Kerguelen specimens are also the same, but I doubt whether the South African specimens should be assigned to Hodgson's antarctic species.

In any case *serrata* would seem to be more happily placed in *Austrofilius* than in *Jaera*. These minute *Asellota* are very difficult to examine and usually the material is very scanty. There is a great likeness between Vanhöffen's figure of pleopod 1, ♂, and mine.

Jaeropsis curvicornis (Nicolet).

1914. Barnard, Ann. S. Afr. Mus., vol. x, p. 224, pl. xx, fig. C (♂).

Additional Localities.—Sea Point, Table Bay (K. H. B., 1914), Lambert's Bay (Prof. T. A. Stephenson, 1938).

FAM. PHREATOICIDAE.

Phreatoicus capensis Brnrd.

1914. Barnard, *loc. cit.*, p. 233, pls. xxiii, xxiv.
1927. *Id.*, Trans. Roy. Soc. S. Afr., vol. xiv, pp. 141 *sqq.*, pls. vi–ix, and text-figs. 1–6 (general biology, and vars. *abbreviatus* and *depressus*) (January).
1927. Sheppard, Proc. Zool. Soc. London, p. 109 (April).

In my 1927 paper the following correction should be made in the legend to fig. 6: for "Kogelberg" read "Steenbras"; figs. *b* and *d* represent the var. *depressus*.

The following additional character of var. *abbreviatus* may be noted: uropods with numerous setae as well as the typical spines.

var. *penicillatus* n.

Side-plates and lateral portions of head strongly setose. Hand of gnathopod (peraeopod 1) in the largest ♂♂ as large as the head in lateral view, robust, palm scarcely longer than hind margin; in ♀ and juv., however, palm distinctly longer than hind margin (*cf.* Barnard, 1927, fig. 4, *b*).

Antenna 2, lower surfaces of 2nd–5th peduncular joints strongly setose, flagellum with dense whorls of setae.

Telson strongly setose, setae on lateral margin long, 2 apical spines and often one lateral on each side, sometimes a subapical pair on dorsal surface (as in var. *depressus*); all the spines more slender than in the typical form.

Uropods with spines as in typical form, but outer ramus with 3 apical spines and inner ramus with 3 or 4; peduncle and rami in addition strongly setose, most of the setae, especially the distal ones, at least twice as long as the spines; ♀ not so strongly setose as ♂.

Locality.—Hermanus (K. H. B., Nov. 1935).

Remarks on the Locality.—The specimens were found in a stream issuing from the base of a cliff in an amphitheatre immediately to the west of the Riviera Hotel, which stands on the 60–70 ft. sea-cut terrace. This amphitheatre or basin was formerly a lagoon opening to the sea, but the mouth is now completely closed by a sand-bar, and it has become merely a marsh overgrown with rushes, palmiet, etc. Although *Phreatoicus* has not been collected in the coastal mountains behind Hermanus, its occurrence there is to be expected. Evidently the animals have been carried down to their present habitat by flooding of the mountain streams, or possibly by more or less subterranean channels. As the habitat can only have been formed after the major and minor uplifts (Haughton) * the establishment of this colony is of quite recent geological age. The occurrence of *Phreatoicus* at an altitude very little above sea-level has therefore no particular significance, and the details of the habitat are given merely because the habitat was somewhat unexpected.

Remarks on the Riversdale Locality.—This locality (recorded without details in 1927, *loc. cit.*, p. 148) was also rather unexpected. It lies on the northern dip slope of the Langeberg Range, a short distance west of the north end of Garcia's Pass (through which the Riversdale-Ladismith road runs). A small stream rises on the Table Mt. Sandstone of the Langeberg and loses itself on the Bokkeveld Beds, which are banked up against the T.M.S. and form the nearly level plain stretching northwards towards Ladismith. The Crustaceans were living amongst clumps of the liverwort *Aneura fastigiata* (K. H. B., Oct. 1926). The stream apparently is not perennial, and it would be interesting to visit the locality at the end of the summer to see whether the stream really is perennial, and if not what happens to the animals.

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* Geol. Cape Town. Explan. sheet 247, p. 41. Geol. Surv. Union S. Afr., 1933.

FAM. BOPYRIDAE.

Gen. *Scyracepon* Tattersall.

1905. Tattersall, Fish. Ireland Sci. Invest., 1904, vol. ii, p. 35.

Female broadly oval. Peraeon segments, except the first one, each with a medio-dorsal boss, increasing in size posteriorly. The first five pleon segments with the pleurae produced in long digitate processes, decreasing in length posteriorly; sixth pleon segment with very short lateral processes. All seven pairs of peraeopods present on both sides, ending in a short claw. Pleopods biramous, the outer rami elongate and digitate like the pleural processes, the inner rami short and ovate. Uropods uniramous, elongate, digitate.

Male with the first 3 pleon segments more or less distinctly marked by lateral indents. A ventral median boss on each of the peraeon segments and on the first 2 pleon segments. Pleopods and uropods absent.

Remarks.—One of the reasons for differentiating this genus, viz.: the ventral bosses in the male, does not hold good, as they are found in other allied genera (e.g. *Grapsicepon*). And as regards the dorsal processes in the female, there are species in which they are more or less distinct on all the segments, and others in which they are restricted to the posterior segments. The specimens described below show a distinct median carina on all the segments in the young female, but only three distinct bosses on the hinder segments in the ovigerous female. This character, therefore, is of little generic value (*cf.* Stebbing, 1904, F. and Geogr. Mald. Laccad. Archip., vol. ii, p. 716, and 1910, Tr. Linn. Soc. Lond., vol. xiv, pp. 112–115).

Morphologically it is not at all easy to separate many of the genera, and one of the reasons for multiplying genera and species in the past has been the theory that each different host must have a different parasite; a theory which is not free from criticism.

Scyracepon levis n. sp.

(Fig. 21.)

Female—Young ♀ symmetrical, ovigerous ♀ asymmetrical. In the former there is a medio-dorsal keel on each peraeon segment, gradually increasing in height posteriorly; in the ovigerous ♀ the keel is obsolete on the 1st–4th segments and is present as an elevated tubercle on 5th–7th segments, that on 7th segment being the highest. Anterior rim of head smooth, postero-lateral angles rounded. Ovarian bosses moderately well developed. All the plates forming the brood-pouch, including the last pair, smooth, not tuberculose, the last two pairs fimbriate on their posterior margins. Pleural lamellae and outer rami of pleopods crenulate on one edge and digitate on the other edge, or digitate on both edges, with more numerous digitations than in *S. tuberculosa*.

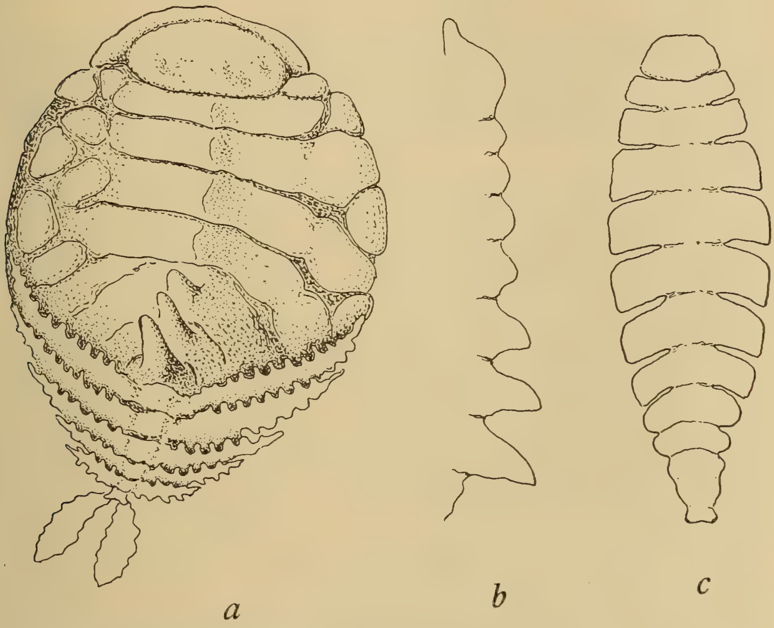

Fig. 21.—*Scyracepon levis* n. sp. *a*, dorsal view of ovigerous ♀. *b*, profile of dorsum of young ♀. *c*, dorsal view of ♂.

Male—Medio-ventral bosses on first 2 pleon segments obscure. Lateral portions of pleon segments ventrally gibbous, but without actual projecting lobes (rudimentary pleopods).

Length, ♀ 9, ♂ 3·5 mm.; breadth, ♀ 7·5, ♂ 1·25 mm.

Locality.—Off Table Bay and Cape Point, in the branchial cavity of *Scyramathia hertwigi* Doflein.

Remarks.—*Scyramathia hertwigi* is very closely allied, perhaps only a subspecies, of the Northern Atlantic *S. carpenteri*, and the parasites of the respective crabs are also very much alike. The northern parasite has the last pair of marsupial plates tuberculose, whereas the southern form has them smooth; and the latter seems to have more digitations on the pleural lamellae and outer rami of the pleopods in the ♀.

Fam. TYLIDAE.

Tylos granulatus Krss.

1932. Barnard, Ann. S. Afr. Mus., vol. xxx, p. 217, fig. 11, *a* and *b*.

In this paper it was stated (p. 216) that no actually ovigerous female had been examined. In February 1937 two ovigerous females were dug up at the mouth of the Schusters River, west coast of Cape Peninsula.

In the position of the brood-pouch they resemble those woodlice which completely roll themselves up into a ball (*loc. cit.*, pp. 225, 226, fig. 13, *b*, *c*), that is: the 5 pairs of oostegites (peraeon segments 1–5) lie perfectly flat, simulating the sterna, while the developing ova and brood press the true sterna inwards against the dorsal body-wall. In the present case this squeezing of the internal organs between the sternal and dorsal plates is carried to such an extreme that these organs appear to be quite degenerate. The chitinous stomach in the head segment remains, but behind this no intestine can be traced, and the hepatic glands are gone also. In fact it would seem improbable that the mother could recover after the escape of the brood.

Each oostegite has two supporting rib-like thickenings and the margins are non-setose. The anterior margin of one overlaps the hind margin of the one in front of it. Cotyledons are developed. Eggs, and young nearly ready to escape, were found together in the brood-pouch of both these females.

AMPHIPODA.

Further records of distribution and notes on some South African species, in addition to those quoted below, will be found in my report on the Amphipods of the John Murray Expedition (vol. iv, 1937).

Fam. LYSIANASSIDAE.

Stomacontion capense Brnrd.

1916. Barnard, Ann. S. Afr. Mus., vol. xv, p. 109, pl. xxviii, figs. 27, 28.
1937. *Id.*, John Murray Exp. Rep., vol. iv, p. 140, fig. 1.

Distribution.—South Arabian coast.

Remarks.—Monod (1937, Mem. Inst. d'Egypte, vol. xxxiv, pp. 6, 10, figs. 1–3, 4, *a–c*, 5, 6, *a*) describes a species *prionoplax* from the Suez Canal, very close to *pepinii* (Stebb.). The John Murray Expedition obtained a specimen in the Red Sea which I identified as *pepinii* (*loc. cit.*, *supra*, p. 140).

Lysianassa ceratina (Wlkr.).

1900. Chevreux, Res. Sci. Camp. Monaco, vol. xvi, p. 16, pl. v, fig. 1.
1912. Chilton, Trans. Roy. Soc. Edin., vol. xlviii, p. 464, pl. i, fig. 5 (*cubensis*, non Stebb.).
1916. Barnard, Ann. S. Afr. Mus., vol. xv, p. 120 (*cubensis*, non Stebb.).
1925. Chevreux and Fage, Faune de France, Amphip., p. 42, fig. 23.
1925. Schellenberg, Beitr. Kenntn. Meeresf. Westafr., vol. iii, p. 113, fig. 1.
1926. *Id.*, Deutsch Südpol. Exp., vol. xviii (zool. x), p. 250.
1928. *Id.*, Trans. Zool. Soc. Lond., vol. xxii, p. 633 (part references).
1938. Ruffo, Ann. Mus. Civ. Genoa, vol. lx, p. 154, fig. 1.

Additional Localities.—Luderitzbucht and Simon's Bay (Schellenberg); Port Nolloth and Lambert's Bay (Prof. Stephenson, 1938); Port Elizabeth (Prof. T. A. Stephenson, 1936); East London (Prof. T. A. Stephenson, 1937).

Remarks.—I am not prepared to admit *cinghalensis* Stebb., 1897; into the synonymy of this species, as Walker and Schellenberg have done, in view of *cinghalensis* having an enlarged 1st joint in the 1st antenna. The 1st antennae admittedly tend to be stouter in the ♂ than in the ♀, but in a ♀ collected by the John Murray Expedition (1937, Barnard, J. M. Exp. Rep., vol. iv, p. 142) I found the 1st joint of antenna 1 was enlarged as in Stebbing's figure of the ♂ *cinghalensis*. Moreover, in the South African examples now referred to *ceratina*, the 2nd and 3rd uropods are stouter, the 2nd with the inner ramus more strongly constricted, the 3rd with stronger (♂) or much stronger (♀) keel on the peduncle, than in *cinghalensis*.

I also do not think Walker was correct in making *urodus* a synonym of *cinghalensis* and thus of *ceratina*; but probably he and Schellenberg are right in not distinguishing *bispinosa* as a separate species.

Distribution.—Atlantic to Senegal; Canary Is.; Mediterranean, Red Sea, and East Africa.

Orchomenella plicata Schell.

1925. Schellenberg, *loc. cit.*, p. 119, fig. 3 (*chilensis*).

1926. *Id.*, p. 292, fig. 28 (*chilensis* forma *plicata*).

Localities.—Luderitzbucht, Simon's Bay (Schellenberg). Port Nolloth (Prof. Stephenson, 1938); Oudekraal, west coast of Cape Peninsula (Prof. T. A. Stephenson, 1934).

Cyphocaris anonyx Boeck.

1926. Schellenberg, p. 244 (references).

1926*a*. *Id.*, Deutsch. Tiefsee Exp., vol. xxiii, p. 210, pl. v, fig. 2; and text-figs. 2, *b*, 5, *a*, *b*.

Locality.—S.W. of Cape Agulhas.

Cyphocaris challengeri Stebb.

1926. Schellenberg, *loc. cit.*, p. 243 (references).

1926*a*. *Id.*, *loc. cit.*, p. 212, pl. v, fig. 3 and text-figs. 2, *d*, 6–10.

Locality.—S.W. of Agulhas.

Gen. *Eurythenes* S. I. Smith.

1891. Sars, Crust. Norw., vol. i, p. 85 (*Euryporeia*).

1905. Chevreux, Bull. Inst. Océan. Monaco, No. 35, p. i (*Katius*).

1927. Schellenberg, Nord. Plankton, Lf. 20, Amphip., p. 678 and p. 681 (*Katius*).

1932. Barnard, Discovery Rep., vol. v, p. 55 (*Katius*) and p. 58 (discussion of identity of the two genera).

1933. Stephensen, Medd. Gronland Komm. Vidensk. Unders. Gronl., vol. lxxix, no. 7.

Eurythenes gryllus (Licht.) Mandt.

1926*a*. Schellenberg, *loc. cit.*, p. 217, fig. 26, *d* (*Katius obesus*).

1932. Barnard, *loc. cit.*, p. 56, fig. 21, and pl. i, fig. 1 (coloured) (*Katius obesus*).

1933. Stephensen, *loc. cit.*, p. 12, figs. 4–7.

1937. Barnard, John Murray Exp. Rep., vol. iv, p. 144.

Since my 1932 exposition of the likenesses between the two genera, Stephensen from an examination of abundant material in the Copenhagen Museum, has furnished the proof that not only are the two (monotypic) genera identical, but also the two "species" are really one: *Katius obesus* being the ♂ and juvenile form, and *Eurythenes gryllus* the ♀.

Locality.—S.W. of Cape Agulhas (Schellenberg), a record overlooked by me in 1932.

Gen. *Bathyamaryllis* Pirlot.

1933. Pirlot, Siboga Exp. monogr., vol. xxxiii *c*, p. 123.

Distinguished from *Amaryllis* by the pronounced rostrum, and differences in the relative lengths of peduncular joints of 1st antenna. *Amaryllis conocephala* Brnrd. (1925, Ann. S. Afr. Mus., vol. xx, p. 324) is transferred to *Bathyamaryllis*.

Gen. *Chironesimus* G. O. Sars.

1891. Sars, Crust. Norw., vol. i, p. 108.

1908. Holmes, Proc. U.S. Nat. Mus., vol. xxxv, p. 498 (*Lakota*).

1926*a*. Schellenberg, *loc. cit.*, p. 219.

Lakota rotundatus Brnrd., 1925, is also to be transferred to this genus.

Chironesimus adversicola (Brnrd.).

1925. Barnard, Ann. S. Afr. Mus., vol. xx, p. 327 (*Lakota a.*).

1926*a*. Schellenberg, *loc. cit.*, p. 219, fig. 13.

Locality.—S.W. of Cape Agulhas (Schellenberg).

Microlysias xenokeras Stebb.

1918. Stebbing, Ann. Durban Mus., vol. ii, p. 64, pl. x.

Locality.—Keurbooms River, Plettenberg Bay, in "red-bait" (ascidian) washed ashore on ocean beach (K. H. B., Jan. 1931, several ♀♀ and juv.).

Remarks.—No adult ♂ is present. The branchial lamellae are pleated on both sides. The 5th joint of gnathopod 1 is not so long as represented by Stebbing, the lower apex forming a narrow projecting lobe (cf. *Orchomenopsis nodimanus* Wlkr.), and the 6th joint has a slight notch with 2–3 setae in middle of lower margin. Epistome in profile slightly concave above, its lower half together with the upper lip forming an even convex curve. Both lobes of maxilla 2 narrow.

Remarks on genus, and description of a second species (from Arabian coast): 1937, Barnard, John Murray Exp. Rep., vol. iv, p. 144.

Fam. AMPELISCIDAE.

Gen. *Ampelisca* Kroyer.

1925. Schellenberg, *loc. cit.*, p. 120 (key to West African species).

Ampelisca spinimana Chevr.

1900. Chevreux, Res. Camp. Sci. Monaco, vol. xvi, p. 39, pl. vi, fig. 2.
1925. Schellenberg, *loc. cit.*, p. 127 (forma *aspinosa*).

Locality.—Luderitzbucht.

Ampelisca palmata Brnrd.

1925. Schellenberg, *loc. cit.*, p. 127.
1932. Barnard, *loc. cit.*, p. 85.

Localities.—Luderitzbucht, Walfisch Bay, Angola, extending to French Congo and Senegal (Schellenberg).

Ampelisca brevicornis Costa.

1925. Schellenberg, *loc. cit.*, p. 130 and p. 133 (forma *platypus*).
1928. *Id.*, Trans. Zool. Soc. Lond., vol. xxii, p. 634 (size and distribution).
1932. Barnard, *loc. cit.*, p. 84.

Localities.—Luderitzbucht, extending to Belgian Congo, Loango, Cameroon, and Dahomey (Schellenberg).

Fam. PHOXOCEPHALIDAE.

Gen. *Pontharpinia* Stebb.

1899. Stebbing, Ann. Mag. Nat. Hist. (7), vol. iv, p. 207 (*Parharpinia*).
1922. Tattersall, J. Linn. Soc. Lond., vol. xxxv, p. 4.
1930. Barnard, Terra Nova Exp. Amphip., p. 335 (*Protophoxus*).
1932. *Id.*, *loc. cit.*, p. 101.
1932. Pirlot, Siboga Exp. monogr., vol. xxxiii *b*, p. 59 (diagnosis of genus and synopsis of species).

Pontharpinia villosa (Hasw.).

1922. Tattersall, *loc. cit.*, p. 4, pl. i, figs. 7–14.
1926. Schellenberg, *loc. cit.*, p. 300.
1931. *Id.*, Swed. Antarct. Exp., vol. ii, p. 75.
1932. Pirlot, *loc. cit.*, p. 60 (*villosa* auctorum, non Haswell).

Locality.—Simon's Bay (1 juv.) (Schellenberg).

Remarks.—According to Schellenberg (1931) and Pirlot, *villosa* auctorum, non Haswell is an insufficiently known species. Under this heading Schellenberg includes his own 1926 record and Tattersall's record. The Simon's Bay example, being young, may for the time being be referred to *stimpsoni* Stebb., already recorded from South Africa.

Gen. *Cyproidea* Hasw.

1904. Walker, Herdman, Ceylon Pearl Fish. Suppl. Rep., vol. xvii, p. 256 (*Gallea*).
1906. Stebbing, Das Tierreich, vol. xxi, pp. 157, 723.
1906. *Id., ibid.*, p. 723 (*Gallea*).
1924. Spandl, Zool. Anz., vol. lxi, p. 243 (*Gallea*).
1925. Barnard, Ann. S. Afr. Mus., vol. xx, p. 341.

When my 1925 paper was written I was unaware of Spandl's paper. Spandl contents himself with the opinion that *Gallea* is more nearly allied to the *Amphilochidae* than to the *Leucothoidae*, but suggests that it may possibly be regarded as representing a separate family. On the contrary, it seems that *Gallea* cannot be separated from *Cyproidea*. Both Walker and Spandl made the same mistake of transposing gnathopods 1 and 2.

Cyproidea ornata (Hasw.).

? 1904. Walker, *loc. cit.*, p. 256, pls. iii and viii, fig. 16 (*G. tecticauda*).
1924. Spandl, *loc. cit.*, p. 243, fig. 2 (*G. crinita*) (fig. 2, *G. tecticauda* for comparison).
1925. Barnard, *loc. cit.*, p. 341.
1927. Hale, Tr. Proc. Roy. Soc. S. Austr., vol. li, p. 314, fig. 3 (as *Stenothoe valida*. Corrected Hale 1929, see next reference).
1937. Sheard, Tr. Proc. Roy. Soc. S. Austr., vol. lxi, p. 20.
1938. Schellenberg, K. Sv. Vet. Ak. Handb., vol. xvi, p. 18.

Spandl separated his *crinita* from *tecticauda* mainly on the different shape of the 5th joint of gnathopod 2 (gn. 1 in Walker and Spandl), and its armature; he also says the 3rd and 4th side-plates are fused in *tecticauda*, a statement apparently based on Walker's figure, because Walker himself does not actually say they are fused.

Whether enough reliance can be placed on the difference in shape of the 5th joint of gnathopod 2 is doubtful, and it is possible that Walker overlooked the fringe of setae on its lower margin in his specimens. There seems little doubt, however, that Spandl's *crinita* is synonymous with Haswell's *ornata*: the South African specimens agree with both.

Schellenberg has no doubts about the synonymy.

Additional Localities.—Port Alfred (Spandl); East London (Prof. T. A. Stephenson, 1937).

Distribution.—S. Australia, Ceylon, Suez, Bismarck Archipelago.

FAM. METOPIDAE.

Proboloides rotunda (Stebb.).

1917. Stebbing, Ann. S. Afr. Mus., vol. xvii, p. 39, pl. vii, B (S. Afr. Crust., pl. xcvi, B).

Examination of the type slide shows that Stebbing was mistaken in regarding the palp of maxilla 1 as being 1-jointed (as in *Metopa*); actually it is 2-jointed, and the species should therefore be transferred to *Proboloides*. There is no accessory flagellum.

FAM. AMPHILOCHIDAE.

Gen. *Hoplopeon* Brnrd.

1932. Barnard, *loc. cit.*, p. 105.

The genotype is *Peltocoxa australis* Brnrd., 1916.

Hoplopleon medusarum Brnrd.

1932. Barnard, *loc. cit.*, p. 105, fig. 54.

Locality.—Saldanha Bay, in medusae (R.R.S. "Discovery").

Gitanopsis pusilla Brnrd.

1925. Schellenberg, *loc. cit.*, p. 140.

Additional Localities.—Luderitzbucht, Swakopmund (Schellenberg); Port Nolloth and Lambert's Bay (Prof. Stephenson, 1938); Still Bay, (Prof. T. A. Stephenson, 1935).

Remarks.—Chilton (1923, Rec. Austral. Mus., vol. xiv, pp. 82 *sqq.*) united this species with *Amphilochus neapolitanus* Della Valle, a synonymy with which neither Schellenberg nor myself agree.

FAM. PHLIANTIDAE.

1936. Sheard, Rec. S. Austr. Mus., vol. v, p. 456.

Gen. *Palinnotus* Stebb.

1906. Stebbing, Das Tierreich, vol. xxi, p. 202.

Palinnotus natalensis n. sp.

(Fig. 22.)

Resembling *P. thomsoni* Stebb. so closely that scarcely any characters, which might be considered of specific value, can be found. (See Stebbing, 1899, Tr. Linn. Soc. Lond., vol. vii, p. 417, pl. xxxv, A).

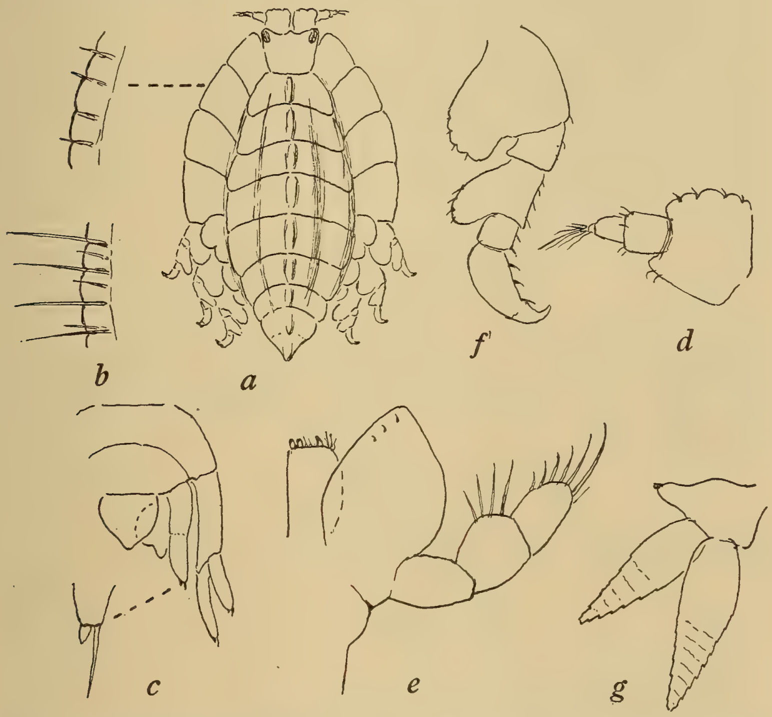

Fig. 22.—*Palinnotus natalensis* n. sp. *a,* dorsal view, 3rd and following pleon segments bent underneath, with margin of anterior side-plates further enlarged. *b,* margin of side-plate of young. *c,* telson and uropods, with apex of ramus (the same for both uropods 1 and 2) further enlarged. *d,* antenna 1. *e,* maxilliped. *f,* peraeopod 5. *g,* pleopod 3, setae omitted.

In fact the greater expansion of the 2nd joint of peraeopod 5 in the largest specimen is the only apparent difference; in the juveniles the expansion is no greater than in Stebbing's species.

The margins of the first four side-plates are very feebly crenulate in the ♀, with minute setules; in the juveniles, however, there are numerous longer setae.

Nevertheless I am reluctant to identify these Natal specimens with a species which has only been found in New South Wales. If the specimens had been found actually in Durban harbour one might perhaps call in the agency of dispersal by ships (*cf.* Chilton, 1911, Tr. N.Z. Inst., vol. xliii, p. 131) as an explanation of their occurrence in South Africa, but the locality is some 20 miles south of Durban.

Barring accidental capture, these small Amphipods are only likely to be collected in the course of intensive investigations such as Prof. Stephenson has been carrying out, and of which there is great need in many parts of the world.

Length (incl. pleo-telson) 4 mm., greatest width 2 mm. Creamy, the gut showing through the integument as a deep red streak, as if the animal had been sucking blood, eyes black.

Locality.—Isipingo, Natal (Prof. T. A. Stephenson, 1936, 1 ♀ and 2 juv. from algae, littoral).

Temnophlias capensis Brnrd.

1916. Barnard, Ann. S. Afr. Mus., vol. xv, p. 158, pl. xxvi, figs. 25–35.

Additional Localities.—(South coast) Still Bay (Prof. T. A. Stephenson, 1932); (west coast) Port Nolloth and Lambert's Bay (Prof. Stephenson, 1938).

Fam. OCHLESIDAE.

1910. Stebbing, Mem. Austral. Mus., vol. iv, p. 581.

Gen. *Ochlesis* Stebb.

1910. Stebbing, *loc. cit.*, p. 581.
1932. Pirlot, Siboga Exp. monogr., vol. xxxiii *b*, p. 105.
1932. *Id.*, Ann. Inst. océan., vol. xii, pp. 24, 26, 29, 30, fig. 17.
1936. *Id.*, Siboga Exp. monogr., vol. xxxiii *e*, p. 298.

General appearance like that of *Odius* or *Iphimedia.* Integument indurated. Head strongly rostrate. Eyes present. Peraeon and first three pleon segments carinate. Pleon segment 4 elongate, 5th short but distinct from 6th. Side-plates 1–3 much deeper than long. Telson entire. Antennae short but with the normal number of peduncular joints; flagella reduced to 1–3 joints, no accessory flagellum. Upper lip elongate. Lower lip with narrow pointed lobes, no inner lobes, mandibular processes short, acute. Mandibles broad at base, tapering to an acute apex, secondary cutting-plate, spine-row and molar absent, palp set far back, slender, 1–3 spinules at apex. Maxilla 1 with small unarmed inner plate, outer plate narrow, with 5 apical spines (or 4 and a subacute apical process), palp absent or a minute rudiment. Maxilla 2, both plates narrow, with a few apical spines. Maxillipeds, inner plates very narrow, separate, with a few spinules on inner margin and apex, outer plates ovate, closely adjacent, palp absent. Gnathopod 1 simple, from the rather elongate 3rd joint onwards slender. Gnathopod 2, complexly subchelate, the 5th joint being produced in an acute process below the 6th (in the Australian species). Peraeopods 1–5 stout, 7th joints strong, uncinate. Pleopods not reduced. Uropods 1–3 biramous.

Remarks.—The above diagnosis is drawn up from the Australian species (hitherto the only known species) and the South African one described below. The two species are obviously congeneric. In the latter the 2nd gnathopod is not known. Stebbing was unable to distinguish the 5th from the 6th pleon segment; they are here clearly separate, though the 5th is dorsally very short and more or less telescoped into the 4th segment.

The remarkable feature of this genus is the absence of the palp of the maxilliped, a feature unknown in any other member of the *Gammaridea* at that time, but found in certain *Caprellidea* (*Cyamidea*) in the adult, and throughout the *Hyperiidea* (Stebbing, p. 582). The nearest approach was the rudimentary 2-jointed palp in *Laphystius.* Since then, however, the genera *Thoriella* Steph., *Chevreuxiella* Steph., and *Danaella* Steph. have been discovered. These three genera are aberrant bathypelagic Lysianassids in which the outer plates of the maxillipeds are operculiform (as in *Laphystius* and *Ochlesis*) with a remnant of the palp in the first two named genera, but with no trace of it in *Danaella.*

Pirlot (Ann. Inst. océan.) has given a comparative study of the degeneration of the palp of the maxilliped in various *Gammaridea*, showing a complete transition to that of the *Hyperiidea*, amongst which certain forms approximate to the former. Pirlot believes that this degeneration of the palp and the expansion of the outer plates to form an operculum closing the mouth below is an adaptation to an inquiline or parasitic mode of life.

Ochlesis lenticulosus n. sp.

(Fig. 23.)

Integument indurated, surface of peraeon and pleon closely and finely pitted. Rostrum strong, moderately deflexed, apically acute. Antero-lateral angles of head rounded-quadrate. Eyes small, circular.

Peraeon and pleon segments 1–3 dorsally carinate; peraeon segment 7 and pleon segments 1 and 2 ending posteriorly in a blunt mediodorsal projection; pleon segment 3 with an upstanding triangular process about in middle of its length; pleon segment 4 dorsally rounded; segment 5 dorsally very short, segment 6 with a dorsolateral keel projecting almost horizontally on either side. Postero-inferior angles of pleon segment 3 sharply upturned. Side-plates 1–3 increasing in depth, anterior margin strongly concave, anterobasal angle slightly projecting in side-plate 1, more so in 2, still more

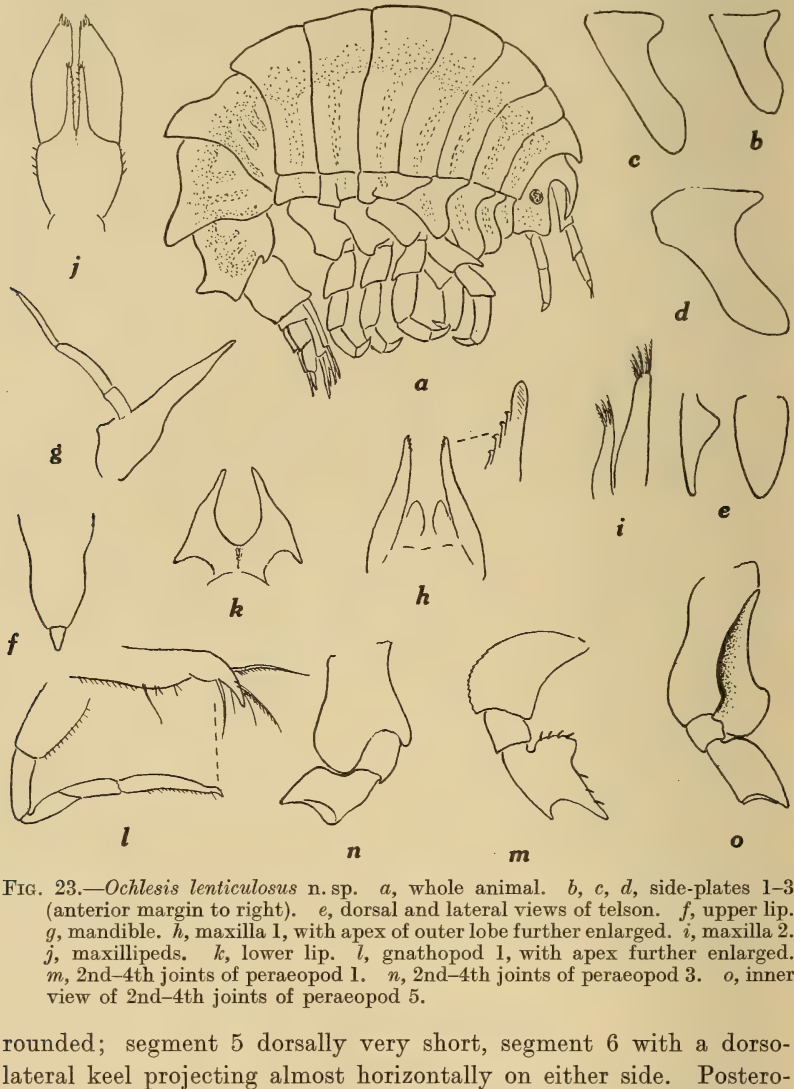

Fig. 23.—*Ochlesis lenticulosus* n. sp. *a*, whole animal. *b*, *c*, *d*, side-plates 1–3 (anterior margin to right). *e*, dorsal and lateral views of telson. *f*, upper lip. *g*, mandible. *h*, maxilla 1, with apex of outer lobe further enlarged. *i*, maxilla 2. *j*, maxillipeds. *k*, lower lip. *l*, gnathopod 1, with apex further enlarged. *m*, 2nd–4th joints of peraeopod 1. *n*, 2nd–4th joints of peraeopod 3. *o*, inner view of 2nd–4th joints of peraeopod 5.

so in 3, extending almost to anterior margin of 2; 4 shallower than 3, its basal anterior corner overlapping 3, anterior margin concave; 5–7 moderately shallow, 5 with anterior projecting point, 6 quadrate, hinder lobes of 5 and 6 deeper than anterior lobes, 7 oblong. Telson rather elongate, oval, apically narrowly rounded, entire, equal in length to peduncle of 3rd uropod, with strong medio-ventral keel.

Antennae short and stout; 1st antenna with spinous projection on distal lower margin of 1st and 2nd joints, flagellum very short, 1-jointed (with an obscure minute terminal joint); antenna 2, flagellum half length of 5th peduncular joint, obscurely 3-jointed, apical joint minute. Upper lip elongate, apically acute. Mandibles with apices acutely pointed, palp elongate, slender, 3rd joint almost as long as 2nd, armed with only a single apical spinule. Maxilla 1 acute, apex with a few minute adnate hooked spinules, inner lobes small, palp absent. Maxilla 2, both lobes narrow, with a few apical spinules. Maxilliped, outer and inner plates well developed, the latter separate from base, palp absent.

Gnathopod 1 simple, slender, 6th joint longer than 5th. Gnathopod 2, distal joints missing on both sides. Peraeopod 1, 2nd joint stout, strongly expanded distally, 4th expanded, twice as broad as 3rd, the upper proximal corner somewhat projecting, heel-like. Peraeopod 2 stout, but 4th joint not strongly expanded, upper proximal corner rounded. Peraeopods 3–5, 2nd joint stout, expanded (in peraeopod 4 more elongate in proportion to width than in the figure of peraeopod 3), anterior margin of 6th joint with a series of spinules, and a pair of slightly larger ones at apex. Seventh joints in peraeopods 1–5 stout and strong. Peraeopods unarmed except for the spinules on 6th joints.

Uropod 1 longest, rami shorter than peduncle, outer slightly shorter than inner. Uropod 2, rami subequal to peduncle, outer ramus slightly shorter than inner. Uropod 3 a little shorter than 2nd, outer ramus distinctly shorter than inner.

Length.—About 8 mm.

Colour.—(As preserved after 2 days in formalin) bright orange, paler laterally, where there is a transverse red or crimson stripe on each peraeon segment, continued below on to the side-plate, on each of pleon segments 1–3 three such stripes, all the stripes ending dorsally in a lateral crimson stripe, rather sharply demarcated on its lower edge, but passing gradually into the orange colour above: 3rd peduncular joint and flagellum of antenna 1, flagellum of antenna 2, and the 7th joints of peraeopods 1–5 white; eyes red; cheek red with corner or antero-lateral angle white. The red or crimson markings were said to be violet or mauve before preservation.

Locality.—Simonstown, littoral (coll. Dr. and Mrs. T. A. Stephenson, 11/6/32, 1 specimen).

Remarks.—Closely allied to *O. innocens* Stebb., 1910, but distinguished by the 1st antennae, the flagellum of which is shorter than the 3rd peduncular joint (instead of *vice versa*) and the 1st peraeopod. The telson in *innocens* is described as having a "process or stout spine" on ventral surface; in the present species it is keeled from base to apex, the keel expanding in basal third into a triangular projection.

The known distribution of *innocens* is now (1936, Pirlot, *loc. cit.*) extended to the Aru Islands, East Indies.

Fam. ACANTHONOTOZOMATIDAE.

Iphimedia capicola Brnrd.

1932. Barnard, *loc. cit.*, p. 118, fig. 66.

Locality.—Off Saldanha Bay, 4 fathoms (R.R.S. "Discovery").

Panoploea excisa Brnrd.

1932. Barnard, *loc. cit.*, p. 129, fig. 73.

Locality.—Off Saldanha Bay, 4 fathoms (R.R.S. "Discovery").

Fam. LILJEBORGIIDAE.

Liljeborgia proxima Chevr.

1916. Barnard, *loc. cit.*, p. 167.
1938. Schellenberg, K. Sv. Vet. Ak. Handb., vol. xvi, p. 31, fig. 15.

Liljeborgia kinahani Bate var. *capensis* Brnrd.

1894. Sars, Crust. Norw., vol. i, p. 532, pl. clxxxviii, fig. 1.
1932. Barnard, *loc. cit.*, p. 142, fig. 81, *a*.

Locality.—Simon's Bay (R.R.S. "Discovery").

Liljeborgia epistomata Brnrd.

1932. Barnard, *loc. cit.*, p. 144, fig. 83.

Locality.—Saldanha Bay (R.R.S. "Discovery").

FAM. CALLIOPIIDAE.

Gen. *Calliopiella* Schell.

1925. Schellenberg, *loc. cit.*, p. 147.

Calliopiella michaelseni Schell.

(Fig. 24.)

1925. Schellenberg, *loc. cit.*, p. 147.

Localities.—Swakopmund (Schellenberg). Table Bay (K. H. B., 5/10/14).

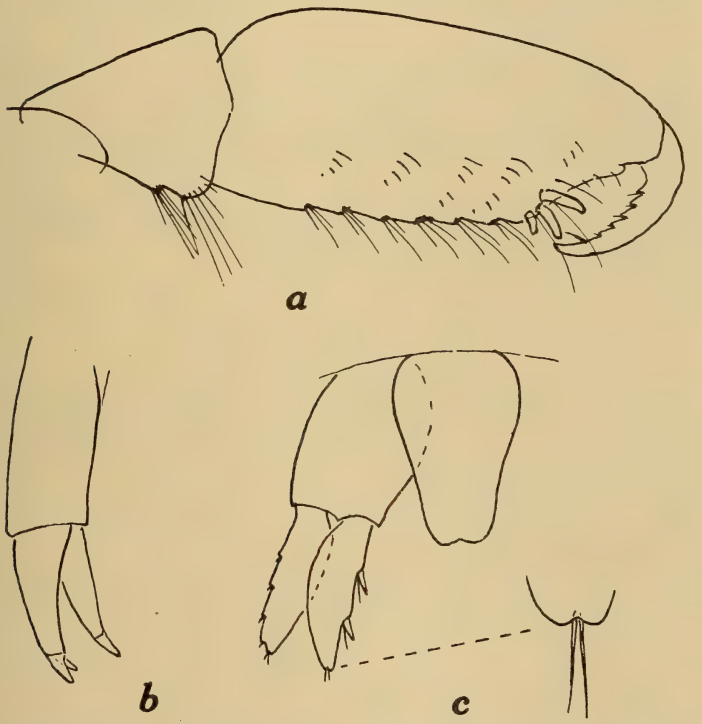

FIG. 24.—*Calliopiella michaelseni* Schell. *a*, hand of gnathopod 2. *b*, uropod 2. *c*, telson and uropod 3, with apex of inner ramus of latter further enlarged.

Remarks.—A single ♂ specimen, 8 mm. in length, was collected at Mouille Point, Cape Town. As it was a singleton and would not fit in with Stebbing's key to the rather heterogeneous family *Calliopiidae*, it was reserved for future study. No more specimens have come to hand, but the 1914 specimen is clearly referable to Schellenberg's species. The accessory flagellum is absent. The telson has a slight apical indent.

Fam. PONTOGENEIIDAE.

Paramoera capensis (Dana).

1916. Barnard, *loc. cit.*, p. 183 (references, except *magellanica*).
1918. Stebbing, Ann. Durban Mus., vol. ii, p. 66, pl. ix, C (*schizurus*).
1925. Schellenberg, *loc. cit.*, p. 149.
1926. *Id.*, *loc. cit.*, p. 363 (forma *capensis*).
1926. *Id.*, Zool. Anz., vol. lxxxv, p. 280 (*fissicauda* Dana var. *capensis*).
1931. *Id.*, *loc. cit.*, pp. 194, 197 (*fissicauda*).
1932. Barnard, *loc. cit.*, p. 209, figs. 118, *n*, 128.

Additional Localities.—(West coast) Luderitzbucht, Redford Bay, Possession and Pomona Islands, Swakopmund (Schellenberg); Port Nolloth and Lambert's Bay (Prof. Stephenson, 1935 and 1938); Saldanha Bay (K. H. B., 1912); (south coast) Still Bay (Prof. Stephenson); Port Shepstone, Natal (H. C. Burnup).

Paramoera bidentata Brnrd.

1932. Barnard, *loc. cit.*, p. 210, figs. 118, *m*, 129.

Localities.—Kalk Bay (S.A. Mus.). Oudekraal, west coast of Cape Peninsula (Prof. T. A. Stephenson, July 1934). Still Bay (Prof. T. A. Stephenson, 1932).

Remarks.—The length of the type specimen should have been given as 13 mm., not 15 mm.

A second specimen, also a ♀, measuring 12 mm., was found at Still Bay; as preserved it is pure white (probably translucent when alive), with maroon or crimson patches as follows: a stripe on posterolateral margin of head (next to the lower part of peraeon segment 1 and upper part of its side-plate), and on the postantennal angle, along the lower margins of 1st and 2nd joints of antenna 1, junctions of 3rd and 4th, and 4th and 5th peduncular joints of antenna 2, and junction of 5th joint and flagellum, apices of mandibular palps, maxillae and maxillipeds, 4th joints and palm of 6th joints of gnathopods 1 and 2; eyes dark reddish-brown.

The Oudekraal specimen is a very fine ovigerous ♀ measuring 19 mm.

Fam. GAMMARIDAE.

Gen. *Megaluropus* Hoek.

1906. Stebbing, Das Tierreich, vol. xxi, p. 420.
1925. Schellenberg, *loc. cit.*, p. 151.
1932. Barnard, *loc. cit.*, p. 145 (*Phylluropus*).

Megaluropus agilis Hoek.

1893. Della Valle, F. Fl. Neapel, vol. xx, p. 695, pl. iii, fig. 9, pl. xxxiv, figs. 1–17.
1904. Walker in Herdman's Ceylon Pearl Fish. Rep., vol. xvii, p. 278.
1925. Chevreux and Fage, *loc. cit.*, p. 226, figs. 236, 237.
1925. Chevreux, Bull. Soc. zool. France, vol. l, p. 304.
1928. Schellenberg, *loc. cit.*, p. 644.
1932. Barnard, *loc. cit.*, p. 146, figs. 84, 85 (*P. capensis*).

Locality.—False Bay (R.R.S. "Discovery").

Distribution.—North Sea, Mediterranean, Port Said, Ceylon, Canary Islands.

Remarks.—As Dr. Schellenberg has pointed out to me, the "Discovery" specimen should probably be identified with this European species. A second species, *longimerus* (fig. 14 is labelled "*longimanus*"), was described by Schellenberg in 1925 from Lagos.

Gen. *Eriopisella* Chevr.

1920. Chevreux, Bull. Soc. zool. France, vol. xlv, p. 81.
1925. Chevreux and Fage, *loc. cit.*, p. 220.
1933. Schellenberg, Mitt. Zool. Mus. Berlin, vol. xix, pp. 408, 409.
1935. Barnard, Rec. Ind. Mus., vol. xxxvii, p. 284.

This genus is separated from *Eriopisa* by the acute antero-inferior angle of side-plate 1, the very slender mandibular palp, inner plate of maxilla 1 with 2–3 setae at apex only, inner plate maxilla 2 narrow, without setae on inner margin, and the short almost styliform 2nd joint of outer ramus of uropod 3.

It includes *seychellensis* (Chevr.) 1901, *pusilla* Chevr. 1920, and *capensis* (Brnrd.) 1916.

Melita subchelata Schell.

1925. Schellenberg, *loc. cit.*, p. 153 (*fresnelii* var. *subchelata*).
1932. Barnard, *loc. cit.*, p. 211, fig. 130.

Localities.—Luderitzbucht (Schellenberg), Walfisch Bay (R.R.S. "Discovery").

Melita orgasmos n. sp.

1916. Barnard, Ann. S. Afr. Mus., vol. xv, p. 191 (part *inaequistylis*, non Dana).

Surface nitidulous, with scattered but rather deep pits. Peraeon segments and pleon segments 1–3 smooth, non-dentate; pleon segment 4 produced in a slender median tooth; segment 5 with 2 submedian denticles *on each side*, with a seta between each pair. Side-plate 1 triangular, strongly expanded forwards, the lower margin as long as the hind margin, with only 2–3 setules, and scarcely any indent near the hind corner. Side-plate 6 in ♀ hooked (as in *palmata* and *zeylanica*). Postero-inferior angle of pleon segment 3 rather strongly produced (cf. *aculeata* or *obtusata*, and also *festiva* Chilton, *loc. cit.*, *infra*), the lower margin with feeble indents.

Gnathopod 1 in ♂ more like that of *coroninii* than that of *palmata* (see Chevreux and Fage, Faune de France, Amphip., figs. 240 and 241, 1925), with upper apex produced in a lobe overhanging base of dactylus which impinges against an oblique setose surface.

Gnathopod 2 in ♂ also like that of *coroninii*, 6th joint broadly oval and in fully-grown specimens somewhat wider distally, but not so strongly expanded as in the figures of *palmata* given by Chevreux and Fage (*loc. cit.*) or Sars (1894, Crust. Norw., vol. i, pl. clxxix).

Gnathopods 1 and 2 in ♀ as in *palmata*.

Peraeopods 3–5, 2nd joints spinulose but not serrate on front margin, with feeble indents on hind margin; 4th joints not markedly wider than 5th joint.

Length and coloration as in Barnard, 1916.

Localities.—Sea Point, Table Bay; St. James, False Bay; Kleinmond, near Hermanus (K. H. B., Feb. 1927); Dyer's Island (J. Drury, 1915); Still Bay (Prof. Stephenson); Port Elizabeth (1 ♂); Port Nolloth (Prof. Stephenson, 1938); Lambert's Bay (Prof. Stephenson, 1938).

Remarks.—My views on the identity of the South African specimens formerly assigned to Dana's species have changed. In the first place my statement that side-plate 5 in ♀ is not hooked is perfectly correct, but without specific import; side-plate 6 in ♀ *is* hooked, as in *palmata* and *zeylanica*.

Closer examination has shown that two distinct forms were confused; one with, and one without, a toothed carina on pleon segment 4; with further differences in the hind angle of pleon segment 3, and the first gnathopod in ♂ together with its side-plate. The non-carinate form is recorded below as *zeylanica.*

The carinate form now appears to me to be quite distinct from *palmata,* and is certainly not the *tenuicornis* of Walker (1904). In spite of Chilton's (1909) remarks, I think that *inaequistylis* remains in the category in which Stebbing (1906) left it: a *species inquirenda.* At any rate South Africa should be excluded from the distribution as given by Chilton (1921, Mem. Ind. Mus., vol. v, p. 535) and Schellenberg (1931, Res. Swed. Ant. Exp., vol. ii, p. 203, as *M. gayi* Nicolet).

The South African form is close to the Australasian *M. festiva* (Chilton) (1916, Tr. N.Z. Inst., vol. xlviii, p. 359, figs. 1, 2) but differs in the ♂ gnathopods. Side-plate 1 is even more markedly triangular in the South African form than in *festiva.* Also Chilton says the 5th pleon segment in *festiva* is dorsally produced into two small teeth, whereas in the South African form there are two teeth on each side of the median line (four in all).

The specific name refers primarily to the expanded 1st side-plate.

The Lambert's Bay examples (4) agree in all respects except in having no tooth on pleon segment 4.

Melita zeylanica Stebb.

? 1904. Walker in Herdman's Ceylon Pearl Fish. Suppl. Rep., vol. xvii, p. 273, pl. v, fig. 33 (*tenuicornis* Dana).
1904. Stebbing, Spolia Zeylanica, vol. ii, p. 22, pl. v.
1916. Barnard, Ann. S. Afr. Mus., vol. xv, p. 191 (part *inaequistylis,* non Dana).
? 1921. Chilton, Mem. Ind. Mus., vol. v, p. 535 (*inaequistylis*).

Peraeon and pleon segments dorsally non-dentate; 5th pleon segment dorsally with a few spinules. Side-plate 1 broadly rounded below, slightly wider than at base, but not markedly produced forwards, lower margin setose; side-plate 6 in ♀ hooked (as in *palmata*). Postero-inferior angle of pleon segment 3 quadrate, with a short point (cf. *palmata*). Gnathopod 1, ♂, 6th joint oblong, without an apical lobe overhanging base of finger, which is terminal and closes against a setose lobe. Hand of gnathopod 2 in full-grown ♂ widening distally, but not strongly expanded as in *palmata.* Front margin of 2nd joints in peraeopods 3–5 with widely spaced spinules, but not serrate as represented in Stebbing's figures; 4th joints also not so broad.

Up to 13 mm. Greenish-brown, somewhat mottled, the hind margin of most of the segments somewhat darker.

Localities.—Little Brak River (Mossel Bay) (K. H. B., Jan. 1931, ♂♂, ovig. ♀♀); Keurbooms River estuary (K. H. B., Jan. 1931); Wilderness lagoon, George District (K. H. B., Jan. 1931); Port Elizabeth; East London (R. M. Lightfoot); Klaasjagers Lagoon, West Coast of Cape Peninsula (K. H. B., March 1938).

Distribution.—Lake Negombo, Ceylon (Stebbing).

Remarks.—I have little doubt that this is the same as Stebbing's species. Those I have seen alive agree in coloration. Two small points of difference in the hinder peraeopods are noted above. The Port Elizabeth and East London specimens were probably also collected in an estuarine or brackish-water habitat, as in the other localities.

Although Chilton (1909, Subant. Is., New Zealand, vol. ii, p. 630) expressed the view that the Ceylonese specimens described by Walker and Stebbing were identical with Dana's New Zealand species (*inaequistylis*), I feel that further study would be welcome. Walker's description of the 4th pleon segment as having a *double* carina ending in two teeth is curious, and quite possibly may not be a chance variation, but a constant specific character (in spite of Chilton's and Norman's remarks).

At present I am not prepared to go farther than to identify the South African specimens with Stebbing's species.

Gen. *Ceradocus* Costa.

1906. Stebbing, Das Tierreich, vol. xxi, p. 430.

Ceradocus aviceps n. sp.

(Fig. 25.)

Integument strongly pitted. None of the peraeon or pleon segments dorsally dentate. Eyes dumb-bell shaped. Side-plates 1–3 very feebly notched at lower hind corner, side-plate 4 deeper than 5, hind margin slightly excavate, a small denticle at lower hind corner, lower hind margin of 7 feebly serrate. Postero-lateral corner of pleon segments 2 and 3 quadrate with a small point, the hind margin feebly crenulate, with a few outstanding setae. Telson cleft to base, lobes divergent, apically notched, with a spine in the notch.

Antenna 1 extending back to middle of pleon, slender, accessory flagellum 11–12 jointed. Antenna 2 slightly shorter than antenna 1, not quite so slender, but not stout, 4th and 5th peduncular joints subequal, flagellum half as long again as 5th joint.

Mandibular palp slender, 3rd joint very slightly longer than 3rd, tipped with 2–3 setae. Inner plates of maxillae 1 and 2 strongly setose on inner margins.

Gnathopod 1, 5th joint slender, about 3½ times as long (measured along upper margin) as wide, 6th joint narrow, about 2½ times as long as wide, widening slightly to the transverse palm, finger matching palm.

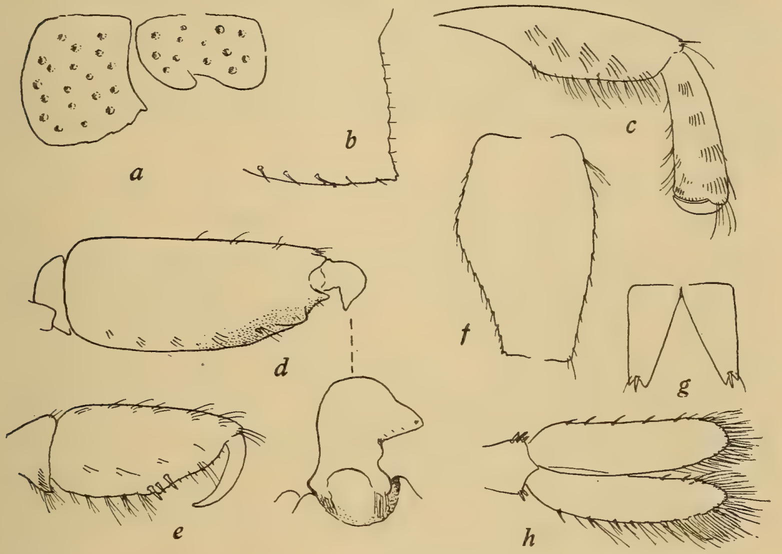

FIG. 25.—*Ceradocus aviceps* n. sp. *a*, 4th and 5th side-plates. *b*, postero-inferior angle of 3rd pleon segment. *c*, gnathopod 1. *d*, gnathopod 2, ♂, inner view, with finger further enlarged. *e*, gnathopod 2, ♀. *f*, 2nd joint of peraeopod 5. *g*, telson. *h*, uropod 3.

Gnathopod 2, ♂, equal on both sides, 5th joint broader than long, 6th robust, as long as the other joints together, oblong-oval, lower distal surface minutely scabrous, with a short blunt ridge apically; finger not hinged dorso-ventrally, but folding inwards on to inner surface of 6th joint, short, stout, strongly hooked, with subacute rudimentary unguis. In ♀ 5th and 6th joints of normal shape, 6th with oblique palm almost as long as hind margin, with 3 spines at junction but without well-marked defining angle, finger matching palm.

Peraeopods 3–5, 2nd joint broader proximally than distally, lower hind corner quadrate, not lobed, hind margin weakly serrate, in peraeopod 3 evenly convex, but in 4 and 5 slightly concave in distal half.

Uropod 3, peduncle extending not quite to apices of uropods 1 and 2, rami extending far beyond these, both rami elongate oval, with rounded apices, upper margin with spaced spinules, apices and lower margin (especially that of lower or inner ramus) setose.

14–15 mm. Uniform greyish brown.

Locality.—Palmiet River lagoon, near Kleinmond, under stones at junction of river and tidal areas (K. H. B., March 1937, ♂, ♀).

Remarks.—Agrees with *Ceradocus* as regards 1st and 2nd maxillae, and mandibular palp, but 4th side-plate better developed than in *C. rubromaculatus* and the other species, and 1st gnathopod unusually slender.

The 2nd gnathopod of ♂ is remarkable for the torsion of the articulation between 6th joint and the finger, whereby the latter closes against the inner surface of the former, instead of against the apical margin usually termed the palm. A partial overlapping of the finger on to the inner surface is seen in *C. semiserratus* (Chevreux and Fage, Faune de France, Amphip., fig. 247, 1925). In the actual shape of 6th joint and finger, the nearest approach to the present form is that of *Melita festiva* (Chilton) (Chilton, Tr. N.Z. Inst., vol. xlviii, p. 359, fig. 1, 1916). The specific name in allusion to the bird's-head appearance of the finger of gnathopod 2, ♂.

Ceradocus rubromaculatus (Stimpson).

1922. Tattersall, J. Linn. Soc. Lond., vol. xxxv, p. 6, pl. 1, figs. 15, 16.
1925. Schellenberg, *loc. cit.*, p. 154.
1936. Pirlot, Siboga Exp. monogr., vol. xxxiii *e*, p. 305.
1937. Barnard, John Murray Exp. Rep., vol. iv, p. 160, fig. 9.
1937. Monod, Mem. Inst. d'Egypte, vol. xxxiv, p. 10, fig. 6, *b–g*.
1938. Schellenberg, K. Sv. Vet. Ak. Handl., vol. xvi, p. 63.

Additional Localities.—Luderitzbucht, Swakopmund (Schellenberg); Port Nolloth and Lambert's Bay (Prof. Stephenson, 1935 and 1938).

Gen. *Maera* Leach.

1938. Schellenberg, K. Sv. Vet. Ak. Handl., vol. xvi, pp. 37, 39 (discussion of characters).

Schellenberg has shown that there is but one decisive character by which to separate the several species which have been placed in the genera *Maera* and *Elasmopus*, to wit: the mandibular palp. Species with a slender palp, the 3rd joint of which is straight and tipped only with a few setae, are assigned to *Maera*.

The following South African species, formerly placed in *Elasmopus*, are consequently transferred to *Maera*: *subcarinatus* (Hasw.), *boeckii* (Hasw.), and *levis* Brnrd. The last mentioned species while in the genus *Elasmopus* was liable to confusion with *laevis* Holmes, 1905, though it might be claimed that *levis* is not actually preoccupied by *laevis*.* On transference to *Maera*, however, it conflicts with *Maera levis* S. I. Smith, 1874, and the name is herewith changed to *Maera vagans* nom. nov.

M. subcarinata is easily distinguished from all the other South African species by the double keel on pleon segment 4.

Maera grossimanus (Mont.).

1906. Stebbing, Das Tierreich, vol. xxi, p. 435.

1925. Chevreux and Fage, Faune de France, Amphip., p. 239, figs. 248, 250.

1925. Schellenberg, *loc. cit.*, p. 155.

Locality.—Swakopmund. Also Senegal.

Remarks.—Schellenberg is inclined to unite *hirondellei* with *grossimanus,* and suspects that my Saldanha Bay specimens (referred to *hirondellei,* 1916, *loc. cit.*, p. 194) are identical with his material. Chevreux and Fage employ a character to separate *inaequipes* and *hirondellei* on the one hand from *grossimanus* on the other, which is not considered by Schellenberg, viz. the projecting lower hind corner of 2nd joint of peraeopods 4 and 5. As my specimens have this projecting lobe, I am inclined to retain them as *hirondellei*. For figure of gnathopod 2 of *hirondellei* see Monod, 1937, *loc. cit.*, p. 10, figs. 7, *e*, 10, *c*.

Maera vagans nom. nov.

1910. Stebbing, Ann. S. Afr. Mus., vol. vi, p. 457 (*bruzelii,* non Stebbing, 1888).

1912. Chilton, Tr. Roy. Soc. Edin., vol. xlviii, p. 510 (*mastersii,* non Haswell, 1879).

1916. Barnard, *loc. cit.*, p. 200, pl. xxvii, fig. 15 (*Elasmopus levis*).

Additional Locality.—Lambert's Bay (Prof. Stephenson, 1938).

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* The Zoological Record gives the spelling of Holmes's species as *laevis*. I have not seen the original paper and can check neither the spelling nor the actual date of publication.

Maera boeckii (Hasw.).

1916. Barnard, *loc. cit.*, p. 199, pl. xxvii, figs. 13, 14.

Further specimens (♂♂ and juv. Still Bay, Prof. Stephenson, 1932) confirm the description of the form identified as Haswell's species.

The convexity of the hind margin of 2nd joint of peraeopod 4 is intermediate between that of peraeopods 3 and 5. The mandible was compared with Walker's figure of that of *sokotrae*, but it should have been stated that only the trunk is thus short and stout, the palp being considerably longer than in Walker's figure, more like that figured by Stebbing for *bruzelii* (Challenger Rep., pl. xcvii). The ♂ gnathopod 2 is quite like that of the ♀, only slightly heavier.

Maera subcarinata (Hasw.).

1910. Stebbing, Ann. S. Afr. Mus., vol. vi, p. 457 (references).
1922. Tattersall, *loc. cit.*, p. 9.
1931. Stephensen, Res. Sc. Voy. Ind. Or. Neerland, vol. iii, p. 11.
1936. Pirlot, *loc. cit.*, p. 317, figs. 136–145.

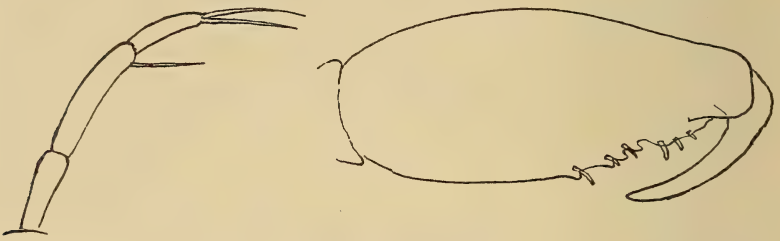

FIG. 26.—*Maera subcarinata* (Hasw.), mandibular palp and hand of gnathopod 2, ♂ (setae omitted).

Two specimens (♂ ♀) from Natal. The mandibular palp is very slender, and, contrary to Walker's statement and Stebbing's figure (Challenger Rep., pl. xcviii, *persetosus*), the 3rd joint is distinctly shorter than the 2nd, with only 2 apical setae (*cf.* Pirlot's figures 137, 143). The hand of gnathopod 2, ♂, is in general agreement with Walker's figure.

Gen. *Elasmopus* Costa.

1932. Stephensen, Annot. Zool. Jap., vol. xiii, p. 487 (synopsis of species. *E. latibrachium* is listed under wrong heading).
1936. Schellenberg, Zool. Anz., vol. cxvi, p. 153.
1938. *Id.*, *loc. cit.*, pp. 37, 52.

Mandibular palp robust, its 3rd joint more or less falcate, and with a comb-like row of spine-setae.

After the transference of *subcarinata, boeckii* and *levis* (*v. supra* = *vagans*) there are only two South African species to be assigned to this genus.

Elasmopus pectenicrus (Bate).

1916. Barnard, *loc. cit.*, p. 197, pl. xxviii, fig. 33.
1917. Stebbing, Ann. Durban Mus., vol. i, p. 446 (*brasiliensis*, non Dana).
1928. Schellenberg, *loc. cit.*, p. 647.
1936. Pirlot, *loc. cit.*, p. 312.
1937. Barnard, John Murray Exp. Rep., vol. iv, p. 161.

There is often a small denticle at base of dactylus in 2nd gnathopod, ♂, fitting in between the hinge and the tooth on palm. Colour: peraeon and pleon purplish-grey with white speckling, a dark medio-dorsal spot on hind margin of peraeon and pleon segments (sometimes only on peraeon, or only on peraeon segments 1–4), a dark lateral spot anteriorly on pleon segments 2–4, dark spots on distal joints of peraeopods 3–5, the 2nd joints pale, eyes black with a yellowish mark behind them.

Additional Localities.—Still Bay and East London (Prof. Stephenson, 1935 and 1937).

Distribution.—Indian Seas, East Indies. Also West Indies.

Elasmopus japonicus Steph.

1925. Barnard, *loc. cit.*, p. 358 (*spinimanus*, non Walker).
1932. Stephensen, *loc. cit.*, p. 490, figs. 1, 2.

The fact that the South African specimens have a dorsal keel (albeit rather low) on pleon segment 4 excludes them at once from being Walker's *spinimanus*. Comparison with Stephensen's figures leaves no doubt as to their correct identity.

Additional Localities.—Isipingo, Natal; Port Elizabeth (Prof. Stephenson).

Distribution.—Japan.

Parelasmopus suluensis (Dana).

1888. Stebbing, Challenger Rep., vol. xxix, p. 1029, pl. c.
1904. Walker in Herdman's Ceylon Pearl Fish. Rep., vol. xvii, p. 278, pl. vi, fig. 38.

1935. Barnard, Rec. Ind. Mus., vol. xxxvii, p. 286, fig. 6.
1936. Pirlot, Siboga Exp. monogr., vol. xxxiii *e*, p. 311.
1938. Schellenberg, K. Sv. Vet. Ak. Handb., vol. xvi, p. 62,

Two ♂♂ from Still Bay (Prof. T. A. Stephenson, 1932, littoral) are white with violet markings and speckling on head, peraeon and pleon, spots and bands on antennae, legs and uropods, the posterior half of the 2nd joint of peraeopods 3–5 also violet; eyes black.

Distribution.—Sulu Sea, Marshall and Solomon Is., Indian Seas to N.W. Australia, Red Sea, British East Africa. Stebbing (1922) records a young specimen from Angola.

Gen. *Gammarus* Fabr.

1916. Barnard, Ann. S. Afr. Mus., vol. xv, p. 202.
1926. Schellenberg, D. Sudpol. Exp., vol. xviii, p. 367 (*Paramelita*).
1927. Barnard, Trans. Roy. Soc. S. Afr., vol. xiv, pp. 167 *sqq*.
1937. Schellenberg, Zool. Jahrb. Abt. Syst., vol. lxix, pp. 469 *sqq*., esp. pp. 472, 480, 481.

Schellenberg in his latest paper, comprising very valuable critical remarks on the fresh-water *Gammarus* species of the world, maintains *Paramelita* as a full genus. He considers that it has affinities with *Melita* rather than with *Gammarus*, and that it may in fact be derived from *Melita*-like marine ancestors, thus avoiding the supposition of a very ancient cosmopolitan distribution of *Gammarus*-like forms. The argument is considerably weakened by the presence of admittedly typical *Gammarus* forms in parts of Australia.

The taxonomy and phylogeny of the genus *Gammarus* are beset with so many difficulties that, *pace* the high authority of Dr. Schellenberg, I am unwilling as yet to admit *Paramelita* to more than subgeneric rank.

The particular features of *Paramelita* appear to be inner margins of inner lobes of 1st and 2nd maxillae with long setae or bristles only distally (proximally there are usually shorter and very fine setae which pass gradually into the longer distal setae; in *Gammarus sensu stricto* the whole inner margin of these lobes is fringed with long setae or bristles); palm of 1st gnathopod, ♂, with only a few spines; presence of accessory branchiae; dactylus (7th joint) of 1st–5th peraeopods with several (usually) spines on inner margin (reduced to 1 or 2, or absent altogether, in *auricularius*); inner ramus of 3rd uropod considerably shorter than outer ramus.

Individually these characters, or some of them, are not decisive, but taken in combination they may serve to indicate that the South African representatives are not quite typical *Gammarus*.

Fam. DEXAMINIDAE.

Polycheria atolli Wlkr.

1905. Walker, Fauna Geogr. Mald. Laccad. Arch., vol. ii, p. 926, pl. lxxxviii, figs. 1–5.
1916. Barnard, *loc. cit.*, p. 211 (*antarctica*, non Stebbing).
1925. Schellenberg, *loc. cit.*, p. 157.
1930. Barnard, Terra Nova Exp. Zool., vol. viii, p. 390.

Additional Localities.—Luderitzbucht (Schellenberg); Lambert's Bay (Prof. Stephenson, 1938); Still Bay (Prof. T. A. Stephenson, 1932).

Distribution.—Maldives, Seychelles, and British East Africa.

Fam. TALITRIDAE.

Gen. *Talitrus* Latr.

1906. Stebbing, Das Tierreich, vol. xxi, p. 524 and p. 527 (*Talitroides*).
1925. Hunt, J. Mar. Biol. Assoc. Plymouth, vol. xiii, p. 854.
1934. Schellenberg, Zool. Anz., vol. cv, p. 159.
1934. Burt, Spolia Zeylanica, vol. xviii, p. 181 (subgen. *Talitropsis*).

Hunt discussed the various characters which have been used to differentiate the terrestrial species from the typical *saltator*, and came to the conclusion that two groups could not be differentiated.

Schellenberg is in favour of retaining the terrestrial species in a genus separate from the typical littoral species, and shows that *Talitriator* Meth. falls into the synonymy of *Talitroides* (Bonnier) Stebb. It would seem that Burt's subgenus should also become a synonym.

Apparently the decision as to which of these two courses should be adopted rests on the value to be attached to the shape of the joints of the maxilliped palp and its armature, a character to which Hunt drew attention (*loc. cit.*, p. 857, fig. 2). *T. saltator* seems to be unique in having the joints (including the outer plate) broad and densely set with stout spines; in the other species they are narrower and bear only a few slender spine-setae near the apices. No transitional state has been recorded (except perhaps in *T. gulliveri.* See Barnard, 1936, Ann. Natal Mus., vol. viii, p. 12).

On the other hand transitions or variations have been observed in all the other characters, especially in the pleopods.

I suggest therefore that the maxilliped palp and the 2nd joint of peraeopod 3 be regarded as the diagnostic features of *Talitrus* (*s.s.*) and that, following Schellenberg, all the other species be grouped together either generically or subgenerically.

Gen. *Talitroides* (Bonnier) Stebb.

1898. Bonnier in Willem. Ann. Soc. Entom. Belge, vol. xlii, p. 208.
1906. Stebbing, *loc. cit.*, p. 527.
1913. Methuen, Proc. Zool. Soc. Lond., p. 109 (*Talitriator*).
1916. Barnard, *loc. cit.*, p. 222 (*Talitriator*).
1917. Stebbing, Ann. Mag. Nat. Hist. (8), vol. xix, p. 330 (April).
1917. Chilton, Trans. New. Zeal. Inst., vol. xlix, p. 294 (Aug.).
1934. Schellenberg, *loc. cit.*, p. 159.

Genotype: *T. alluaudi* Chevr., 1896, Seychelles.

After my 1916 identification of specimens from numerous localities as belonging to Methuen's species, Stebbing (1917) on the basis of some Natal specimens came to the conclusion that *eastwoodae* was identical with Bate's *africanus*. A revision of my former material, together with a lot of new material, shows unfortunately that the matter is not quite so simple.

The expansion of the 5th joint of gnathopod 1 was noted by Methuen, and incorporated in my diagnosis and Hunt's table (*loc. cit.*, p. 860). Bate's figure, however, shows a linear (or cylindrical) 5th joint. One might pass over this detail in the figure of the whole animal, but Bate has also given an enlarged figure of this joint, in which the linear shape is unmistakable. Amongst my material there are specimens in which this joint is linear, but not one of these specimens comes from a locality *east* of 26° E. long. All the specimens from Natal, including some from Stella Bush, Durban (Port Natal was the old name for Durban), Zululand and the Eastern Cape Province have the expanded 5th joint as found in *eastwoodae*.

On the other hand they all agree with Bate's description and figure as regards the length of the 1st antennae, and the pleopods are just long enough to show their tips below the pleurae as in Bate's figure; the 2nd joint of peraeopod 3 in his figure, however, is too broad for our specimens.

Although I admit that there is much justification for Stebbing's view, I prefer to wait until specimens from the type locality showing a linear 5th joint in gnathopod 1 are available, before deciding definitely on the position of Bate's species; and in the meantime to retain Methuen's specific name.

Whether all the South African forms should bear this name is a question which has been considerably complicated by the study of all the material now at hand.

The eastern form is clearly demarcated by the characters given below, and cannot be separated from *Talitrus* except on the two characters given above (mxp. palp and 2nd joint peraeopod 3); the pleopods are neither degraded nor even reduced in size, and the length of the 1st antennae is connected by intergrading forms with the very short antennae of *T. saltator.* This form I have called *eastwoodae* forma *typica.*

All the specimens from the western Cape Province exhibit shorter 1st antennae and stouter pleopods, the latter with a varying degree of degradation, at least of the inner rami. As regards the 5th joint of gnathopod 1 it is linear in specimens from some localities, and expanded in those from other localities. I have separated off four forms; no doubt with still more detailed study of further material other forms, races or local varieties, could be distinguished, but for the present I think discrimination has gone far enough.

Reference must be made to the very curious form with enlarged ungues in the peraeopods, which up to now has only been found in one locality in the S.W. Cape mountains.

Talitroides eastwoodae (Meth.).

(Fig. 27.)

1913. Methuen, *loc. cit.*, p. 110, pls. x, xi.
1916. Barnard, *loc. cit.*, p. 223.
1917. Stebbing, *loc. cit.*, p. 330.

Forma *typica.*

(Fig. 27, *a–d.*)

The 5th joint of gnathopod 1 expanded, *i.e.* the inner margin more or less prominently rounded, the length (along upper margin) not more than twice the greatest width. 6th joint ovate, with indistinct palm (*eastwoodae*), but in larger and mature specimens more parallel-sided, with very short but distinct palm.

Antenna 1 extending at least to half length (cotypes of *eastwoodae*, and samples from Pinetown, Natal) of 5th peduncular joint of

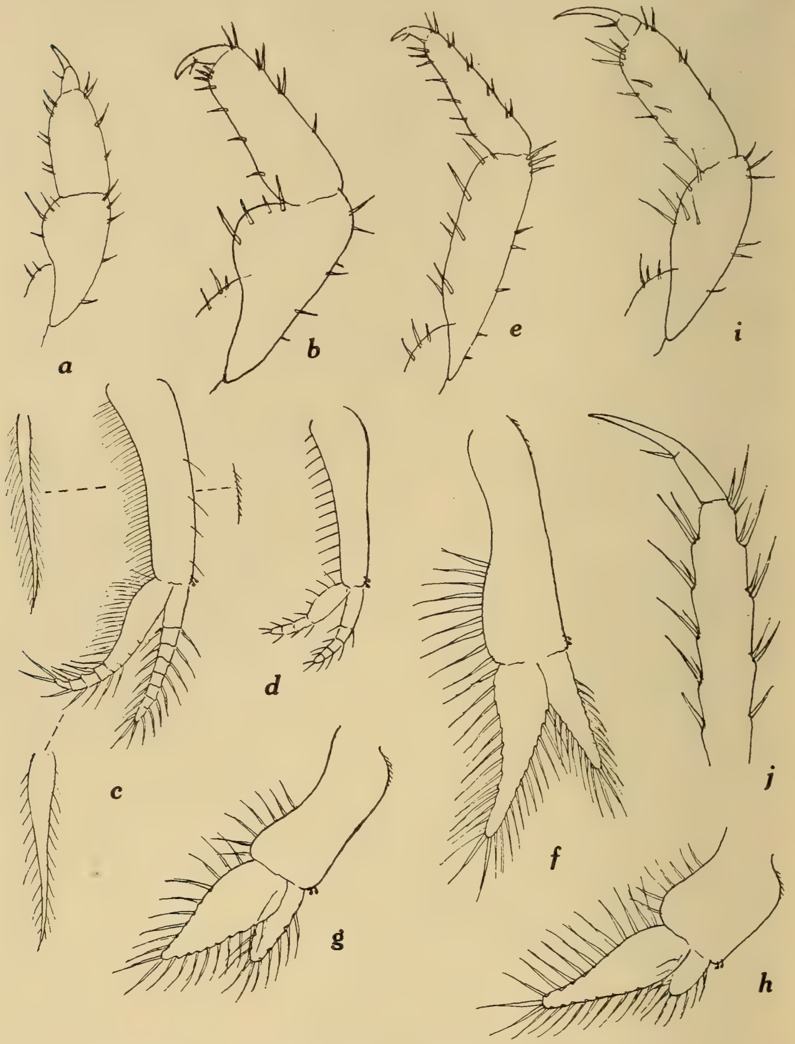

Fig. 27.—*Talitroides eastwoodae* (Meth.). Forma *typica*. *a*, 5th–7th joints of gnathopod 1, immature. *b*, the same, adult. *c*, pleopod 1. *d*, pleopod 3. Forma *cylindripes*. *e*, gnathopod 1. *f*, *g*, *h*, pleopods 1–3. Forma *macronyx*. *i*, gnathopod 1. *j*, 6th and 7th joints of peraeopod 4 (peraeopod 5 similar).

antenna 2, usually to $\frac{3}{4}$ or $\frac{4}{5}$, or even to end of peduncle (Durban).

Pleopods slender, elongate, outer margin of peduncle even (nearly straight) with numerous close-set plumose setae along whole length (cotypes *eastwoodae*), or along distal half, or only a few at distal $\frac{1}{3}$ (Durban); the rami subequal (the outer slightly the longer), more or less distinctly jointed.

Localities.—Transvaal: Woodbush (*eastwoodae*).
Natal: Pietermaritzburg, Howick, Pinetown, Karkloof, Durban.
Zululand: M'fongosi.
Eastern Cape Province: Port St. Johns, Doornnek (Alexandria Div.). Gt. Winterberg, 7000 ft. (Fort Beaufort Div.).

All these localities are *east* of about 26° E. long.

Forma *cylindripes*.

(Fig. 27, *e–h*.)

The 5th joint of gnathopod 1 more or less parallel-sided, length (along upper margin) at least $2\frac{1}{2}$ times, usually 3 times, the width, inner margin nearly straight or only very slightly convex. 6th joint elongate, ovate, tapering, with very feeble, scarcely developed, palm.

Antenna 1 extending $\frac{1}{4}$ to $\frac{1}{2}$ length of 5th peduncular joint of antenna 2, usually $\frac{1}{3}$–$\frac{1}{2}$.

Pleopods stout or moderately stout, peduncle distally more or less swollen, outer margin sinuous, with plumose setae on distal half or third; rami stout, more or less distinctly unequal (the outer the longer), not jointed.

Localities.—S.W. Cape Province: Cape Peninsula, Sir Lowry Pass, Houw Hoek, Mossel River (Hermanus), Gt. Winterhoek Mts., 3500 ft. (Tulbagh).

Forma *setosa*.

The 5th joint of gnathopod 1 expanded (as in *eastwoodae*).

Antenna 1 extending $\frac{1}{4}$–$\frac{1}{2}$ (usually $\frac{1}{2}$) along 5th peduncular joint of antenna 2.

Pleopods stout, peduncle with close-set, plumose setae along *whole* of sinuous outer margin, rami subequal or distinctly (though not greatly) unequal.

Localities.—S.W. Cape Province: Cape Peninsula, Stellenbosch, Tulbagh and Gt. Winterhoek Mts., Somerset West, Ceres, River Zonder End Mts., Onderberg Vlei (Clanwilliam).

A variety of this form occurs in Orange Kloof, Table Mt., in which the peduncle of the pleopods is setose only on the distal third.

Forma *calva*.

As in forma *setosa*, but the peduncle of pleopods non-setose, the rami unjointed, but the incisions marking the limits of the fused joints very deep, so that the ramus becomes a series of subglobose segments.

Localities.—Western Cape Province: Cape Peninsula, Wellington, Swellendam Mts., northern slopes of Matroosberg (Hex River Mts.), George, Knysna, Zwartberg Range at Meiring's Poort (Oudtshoorn Distr.).

Forma *macronyx*.

(Fig. 27, *i*, *j*.)

The 5th joint of gnathopod 1 ovate, inner margin subparallel with outer margin, almost straight or only slightly convex; 6th oblong, parallel-sided, palm distinct though short (equal to basal width of 7th joint), transverse, with rounded angle bearing 2 very strong spines and a smaller one; 7th joint bearing an unusually strong spinule on inner apex; unguis elongate, twice as long as 7th joint.

Ungues of peraeopods 1–5 longer than their 7th joints.

Antenna 1 extending half-way along 5th peduncular joint of antenna 2.

Pleopods stout, peduncle setose along whole of outer margin, rami stout, subequal (outer slightly the longer), not jointed.

Locality.—S.W. Cape Province: Hottentots Holland Mts., 4000 ft. (Somerset West) (Jan. 1916, K. H. B.).

Gen. *Talorchestia* Dana.

1916. Barnard, *loc. cit.*, p. 215.
1917. Chilton, Trans. New Zeal. Inst., vol. xlix, p. 293 (N. Zealand species).
1922. Stebbing, Goteb. K. Vetensk. Vitt. Handb., vol. xxv, no. 2, p. 8.
1922. Tattersall, Mem. Asiat. Soc. Bengal, vol. vi, p. 454.

Tattersall has given a key to some of the species, including two of the South African ones. He has, however, transposed *ancheidos* and *australis*, and assumed that in the latter ("ancheidos" in his key) "side-plates 2–4" are without a well-marked lobe on hind margin, whereas my description referred to side-plate 2 only ("side-plate . . . 2 without a strongly produced lobe"). As a matter of fact this character should not be used; the lobe in question is present in *australis* but not nearly so prominent as in the other species.

A synopsis of the four South African species is given below (p. 536) which permits the identification not only of ♂♂, but also of ♀♀.

A very interesting feature has been noted in *ancheidos*, which was entirely overlooked in my original description. viz.: the minute corrugations or ridges on the lower margins of pleon segments 2 and 3 (in both sexes), causing an appearance of crimping. It occurs also in *Orchestia floresiana* Weber. See: Stephensen, 1935, B. P. Bishop Mus. Bull., vol. cxlii, p. 24, and Barnard, 1935, Rec. Ind. Mus., vol. xxxvii, p. 288, fig. 7; but see also Schellenberg's remarks on

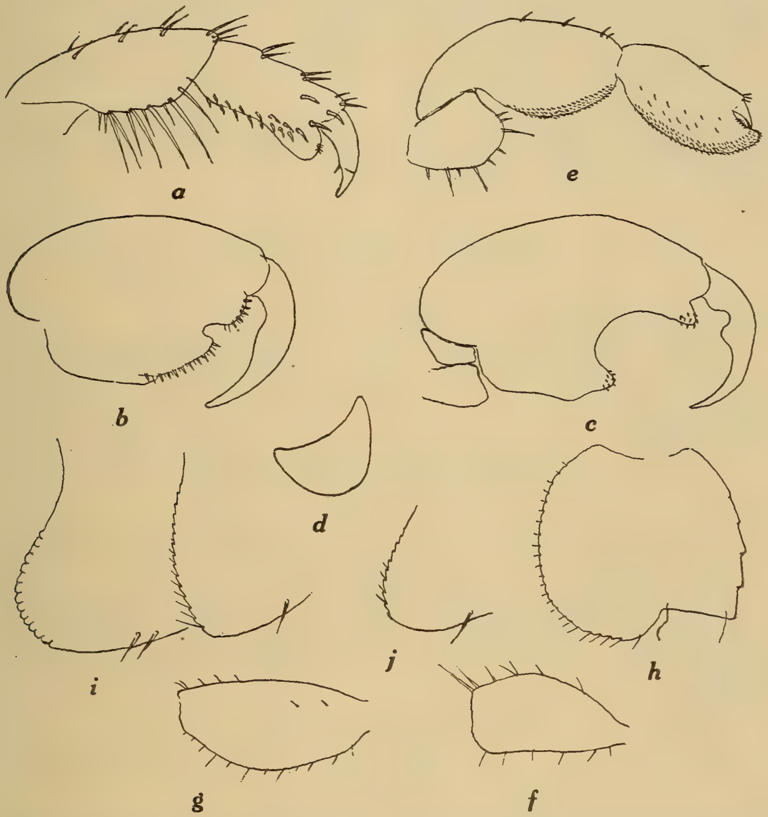

Fig. 28.—*Talorchestia capensis* (Dana). *a*, gnathopod 1, ♂. *b*, hand of gnathopod 2, ♂, immature. *c*, the same, adult (inner view). *d*, cross-section of 2nd joint of gnathopod 2, ♂ (outer side to right). *e*, distal joints of gnathopod 2, ♀. *f*, *g*, 2nd joints of gnathopod 1 and 2 respectively, ♀ (anterior margin below). *h*, 2nd joint of peraeopod 5. *i*, pleon segments 1 and 2, ♂. *j*, pleon segment 3, ♀.

Stephensen's and my identifications (Zool. Anz., vol. cxvi, pp. 155, 156, 1936).

T. tricornuta Shoemaker, 1920, from both sides of the Congo River mouth, is near *quadrispinosa*, but has only 3 dorsal spines, and differently shaped gn. 2 and prp. 4 in ♂.

T. skoogi Stebb., 1922, from Port Alexandra, has a distinctive 2nd gnathopod in ♂.

T. landanae Schell, 1925, from Portuguese West Africa, is near *ancheidos*, but differs in the palm of gn. 2, ♂, and the hind margin of 2nd joint of prp. 5.

Talorchestia capensis (Dana).

(Fig. 28.)

1916. Barnard, *loc. cit.*, p. 216.

Locality.—Keurbooms River, Plettenberg Bay (K. H. B., Jan. 1931, ♂♂, ♀♀ on ocean beach); Port Nolloth (Prof. Stephenson, 1935, ♂♂, ovig. ♀♀, juv.).

Talorchestia quadrispinosa Brnrd.

(Fig. 29.)

1916. Barnard, *loc. cit.*, p. 217, pl. xxvii, figs. 29–32.

1925. Schellenberg, *loc. cit.*, p. 159.

Localities.—Luderitzbucht, Prince of Wales Bay, Walfisch Bay (Schellenberg); Port Nolloth and Lambert's Bay (Prof. Stephenson, 1938).

Talorchestia australis Brnrd.

(Fig. 30.)

1916. Barnard, *loc. cit.*, p. 220, pl. xxvii, figs. 33, 34.

Locality.—Kleinmond, mouth of Bot River (Caledon Division) (K. H. B., Jan. 1927, ♂♂, ♀♀).

Talorchestia ancheidos Brnrd.

(Fig. 31.)

1916. Barnard, *loc. cit.*, p. 221, pl. xxvii, figs. 35, 36.

Localities.—Keurbooms River, Plettenberg Bay (K. H. B., Jan. 1931, ♂♂, ♀♀ under logs, dead Zostera and other debris on margins of estuary); Masiene (near Chai Chai), Portuguese East Africa (R. F. Lawrence, 1924, ♂♂, ♀♀).

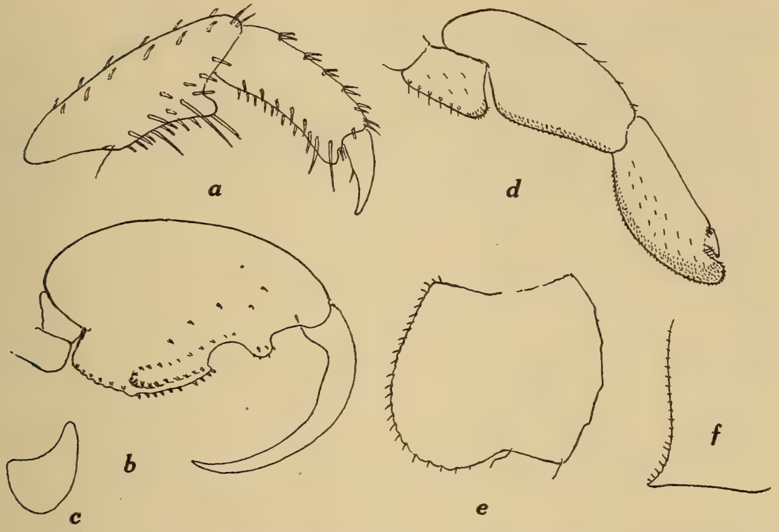

Fig. 29.—*Talorchestia quadrispinosa* Brnrd. *a*, gnathopod 1, ♂. *b*, gnathopod 2, ♂ (inner view). *c*, cross-section of 2nd joint of gnathopod 2, ♂. *d*, gnathopod 2, ♀. *e*, 2nd joint of peraeopod 5. *f*, pleon segment 3.

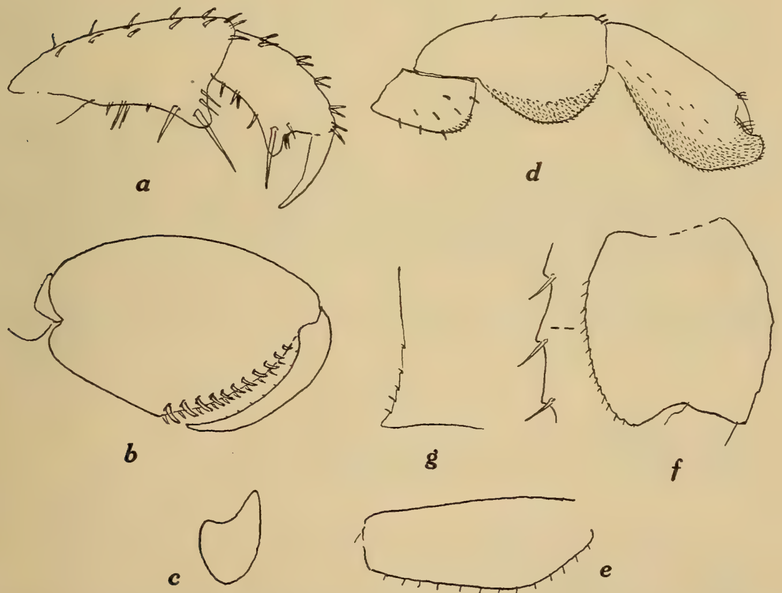

Fig. 30.—*Talorchestia australis* Brnrd. *a*, gnathopod 1, ♂. *b*, gnathopod 2, ♂ (inner view). *c*, cross-section of 2nd joint of gnathopod 2, ♂. *d*, gnathopod 2, ♀. *e*, 2nd joint of gnathopod 2, ♀ (anterior margin below). *f*, 2nd joint of peraeopod 5, with hind margin further enlarged. *g*, pleon segment 3.

Remarks.—The Masiene specimens have a slightly more robust 6th joint on gnathopod 2, ♂, and a slightly broader 6th joint on gnathopod 1, ♂, so that the finger extends only to the base, not the apex, of the apical lobe.

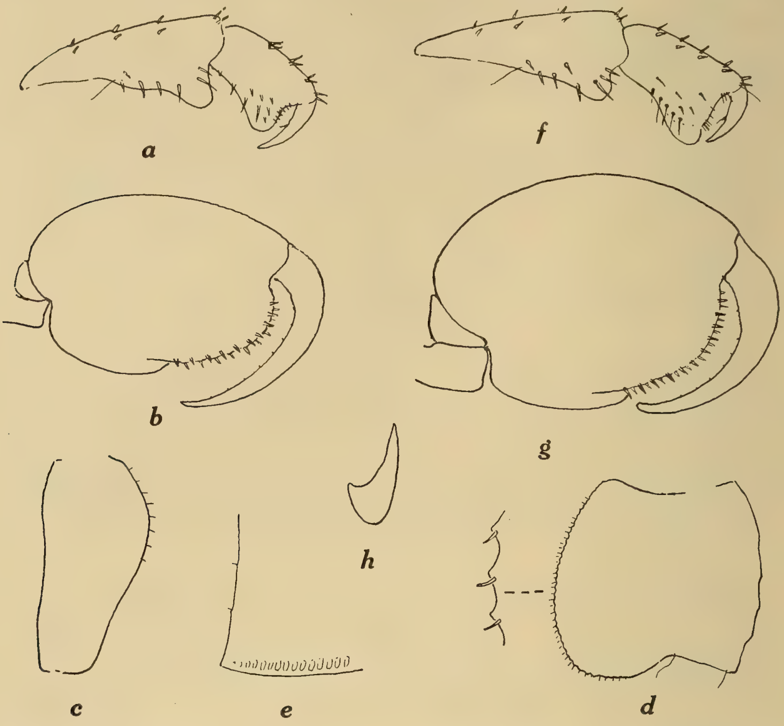

Fig. 31.—*Talorchestia ancheidos* Brnrd. *a*, gnathopod 1, ♂. *b*, gnathopod 2, ♂. *c*, 2nd joint of gnathopod 2, ♀ (anterior margin to right). *d*, 2nd joint of peraeopod 5, with hind margin further enlarged. *e*, pleon segment 3. *f*, gnathopod 1, ♂. *g*, gnathopod 2, ♂. *h*, cross-section of 2nd joint of gnathopod 2, ♂. (*f*, *g*, *h*, specimens from Masiene, Portuguese East Africa.)

Gen. *Parhyale* Stebb.

1906. Stebbing, Das Tierreich, vol. xxi, p. 556.
1934. Iwasa, J. Fac. Sci. Hokkaido, Zool., vol. ii, p. 1.

Parhyale inyacka (Brnrd.).

1916. Barnard, *loc. cit.*, p. 233, pl. xxviii, fig. 4 (*Hyale i.*).
1925. Chevreux, Bull. Soc. zool. France, vol. l, p. 370, fig. 17 (*Hyale i.*).

1933. Stephensen, Zool. Jahrb. Abt. Syst., vol. lxiv, p. 441, figs. 3, 4 (*Hyale i.*).

Specimens from Senegal (Chevreux) and from Bonaire Is., Dutch West Indies (Stephensen), have been identified with this species. Stephensen showed the presence of a rudimentary inner ramus on uropod 3, the same has been confirmed in Chevreux's specimens by Fage and Monod (1936, Arch. Zool. Exper. Gen., vol. lxxviii, p. 105, figs. 3–7); and it is present also in the types of *inyacka* although entirely overlooked by me in 1916. All these specimens therefore are correctly transferred to the genus *Parhyale.* Fage and Monod, however, refer them all to the West Indian *fasciger* Stebb., 1897. As *P. fasciger* has been recorded from Cameroons (Schellenberg, 1925), there is perhaps some justification for suspecting that all the Atlantic records of *inyacka* are referable to Stebbing's species. Stebbing's figure of the 2nd gnathopod, ♀, however, is quite different from that of the type of *inyacka* (and from Stephensen's 1933 figure).

Until a long series of all stages of both sexes from Delagoa Bay and Atlantic localities has been compared, I prefer to keep *inyacka* as a separate species, especially as the hind margin of 2nd joint of peraeopod 5 is more strongly serrate than in Stephensen's figure, and much more strongly so than in the figures of Stebbing and of Fage and Monod.

Gen. *Parorchestia* Stebb.

1906. Stebbing, Das Teirreich, vol. xxi, pp. 557, 735.

1916. Barnard, *loc. cit.*, p. 226.

1922. Stebbing, Goteb. K. Vet. Vitt. Handl., vol. xxv, no. 2, p. 9.

The finding of some specimens at a locality intermediate between Cape Town and East London (the extreme west and east localities recorded by me in 1916) has led to the re-examination of all the material, and I have come to the conclusion that the species formerly identified as the New Zealand *tenuis* should really be regarded as a separate species.

Parorchestia rectipalma n. sp.

(Fig. 32.)

1916. Barnard, *loc. cit.*, p. 226 (*tenuis*, non Dana).

It is unfortunate that the adult ♂ of the New Zealand *tenuis* has, apparently, never been figured. Thomson's *Allorchestes recens* is regarded as synonymous with *tenuis*, and the hand of the gnathopod 2 of the *immature* South African ♂ corresponds fairly closely with

Thomson's figure (Trans. N. Zeal. Inst., vol. xvi, pl. 13, figs. 2–5, 1884). But if Thomson figured an adult ♂, then there is considerable difference between his species and the South African one.

Chilton (1909) described four new species from the New Zealand region alone, and *a fortiori* it seems very unlikely that one species should inhabit both New Zealand and South Africa. I therefore propose a new specific name for the South African specimens, and give figures of the 1st and 2nd gnathopods in both sexes.

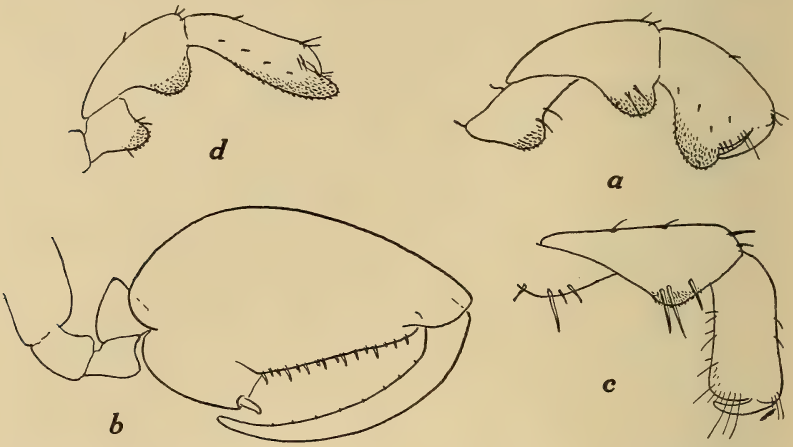

Fig. 32.—*Parorchestia rectipalma* n. sp. *a*, gnathopod 1, ♂. *b*, gnathopod 2, ♂ (adult). *c*, gnathopod 1, ♀. *d*, gnathopod 2, ♀.

Locality.—Keurbooms River, Plettenberg Bay (K. H. B., Jan. 1931, ♂♂, ovig. ♀♀ and juv., beneath logs and debris washed up on the banks of the estuary); estuary of Klip Drifts Fontein stream, Potteberg, Bredasdorp District (A. C. Harrison, May 1936).

Parorchestia dassenensis Brnrd.

1916. Barnard, *loc. cit.*, p. 227, pl. xxviii, figs. 1, 2.

1922. Stebbing, *loc. cit.*, p. 10, pl. iv (*tenuis*, non Dana).

Stebbing's statement that gnathopod 2, ♂, "makes a near agreement with G. M. Thomson's figure" is incompatible with his own figure of this limb. On the contrary the palm with its two notches is very similar to that of *dassenensis*, except that the proximal notch is deeper in Stebbing's figure. I have no doubt that the two forms are conspecific.

Locality.—Dyer's Island, near Danger Point (Stebbing).

Hyale saldanha Chilton.

(Fig. 33.)

1916. Barnard, *loc. cit.*, p. 229, pl. xxvii, fig. 37.
1925. Schellenberg, *loc. cit.*, p. 162.

Localities. — Luderitzbucht (Schellenberg); Port Nolloth and Lambert's Bay (Prof. Stephenson); Dyer's Island (S.A. Museum).

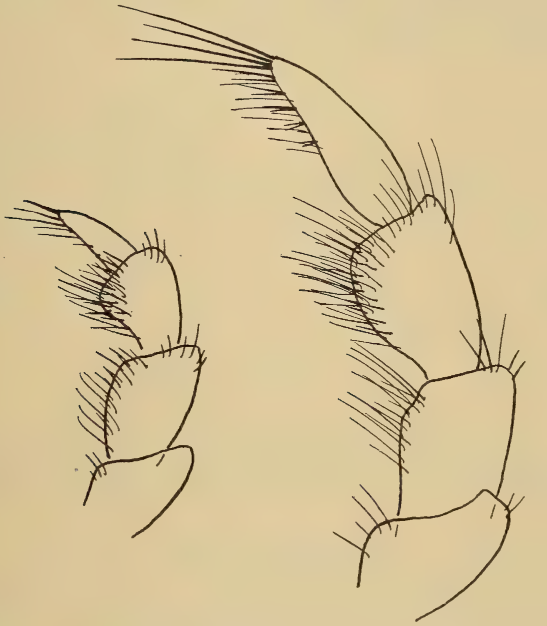

Fig. 33.—*Hyale saldanha* Chilton. Palp of maxilliped, ♀ on left, ♂ on right.

Remarks.—Neither Chilton, nor myself, nor Schellenberg have referred to the notable sexual difference in the palp of the maxilliped (fig. 33). The example figured is an extreme case; usually the palp is not quite so much larger in the ♂ than in the ♀, but nevertheless the difference is always noticeable. So far as I am aware such a feature has not been recorded for any other species of the genus, though in *camptonyx* the apical seta is stated by Stebbing (Das Tierreich, vol. xxi, pp. 561 (key), 570) to be very long in ♂, implying that it is longer in ♂ than in ♀.

Gen. *Allorchestes* Dana.

1906. Stebbing, *loc. cit.*, pp. 581, 736.
1926. Chilton, Trans. New Zeal. Inst., vol. lvi, p. 515.

The character distinguishing this genus from *Hyale* is the small lobe of the 5th joint of gnathopod 2 in ♂ (fig. 34). The ♀♀ of the two genera appear to be indistinguishable.

A recent examination of the examples previously referred to *Hyale grandicornis* (1916, Barnard, *loc. cit.*, p. 230), together with further material, has shown that in some samples the ♂♂ had the lobed 5th joint characteristic of *Allorchestes*. The lobe was found to be present in the youngest specimens recognizable as ♂♂, and was as well developed as in ♀♀, extending to the lower apex of the 4th joint. In later stages the lobe tended to become smaller, extending only about half-way along the distal margin of 4th joint. But even in the largest and fully adult ♂♂ it was present as a thin plate set transversely between the 4th and 6th joints, with an apical fringe of plumose setae.

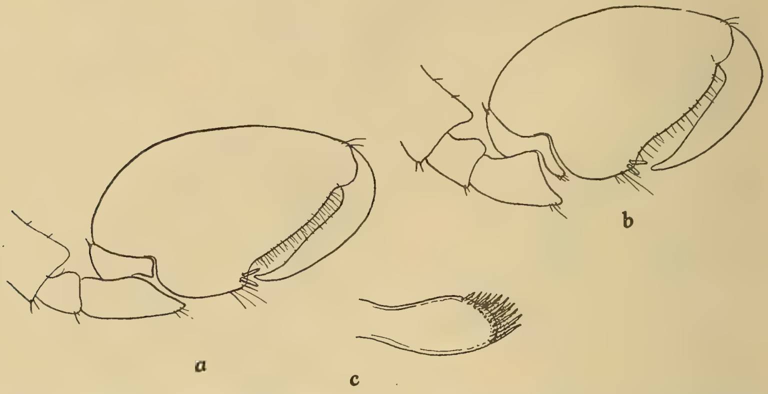

Fig. 34.—*Hyale grandicornis* (Kröyer). *a*, hand of gnathopod 2. *Allorchestes inquirendus* n. sp. *b*, hand of gnathopod 2. *c*, process of 5th joint of gnathopod 2.

In other lots, however, there was only a very small conical knob forming the outer apex of 5th joint, as is found in other species of *Hyale*; even in the youngest ♂♂ only this knob and no trace of a setigerous lobe was found.

It seems, therefore, that two species, assigned to different genera, must be recognized, until perhaps breeding experiments can show whether the character has any diagnostic value. In other respects the two forms are indistinguishable, though there is a tendency for the 2nd antennae to be slightly longer in *Hyale grandicornis*, and for spines to be absent from the outer ramus of 1st uropod in the *Allorchestes* specimens.

On the other hand, my remarks (*loc. cit.*) on the variability of characters holds good. All the *Allorchestes* come from localities in the Cape Peninsula, east and west sides, except one lot from Port Elizabeth; *Hyale grandicornis* occurs as far east as Natal, and has not yet been found on the *west* side of the Cape Peninsula, as the following list of localities will show:—

		Allorchestes.	*H. grandicornis.*
West side of Cape Peninsula	Table Bay . . .	×	
	Oudekraal . . .	×	
	Hout Bay . . .	×	
	Near Cape Good Hope.	×	
East side of Cape Peninsula (False Bay)	Kalk Bay and St. James	×	×
	Buffels Bay . .	×	
South and south-east coast	Kleinmond (Caledon Div.) . . .	. .	×
	Still Bay . . .	. .	×
	Keurbooms R., Plettenberg Bay . .	. .	×
	Port Elizabeth . .	×	
	East London . .	. .	×
	Port Shepstone, Natal.	. .	×

Allorchestes inquirendus n. sp.

(Fig. 34, *b*, *c*.)

To the features given for *Hyale grandicornis* (1916, *loc. cit.*, p. 231) may be added:

Gnathopod 1, ♂, similar to Stebbing's figure of that of *A. humilis* (1899, Trans. Linn. Soc. Lond., vol. vii, pl. xxxiii, D) the 2nd joint strongly expanding from a narrow base, the hind margin convex.

Gnathopod 2, ♂, fig. 34, *b*. The lobe of 5th joint relatively larger in younger specimens.

In the ♀ gnathopods 1 and 2 as in Stebbing's figures (*loc. cit.*, pl. xxxiii, A, B), the hind margin of 2nd joint in gnathopod 1 being convex as in the ♂.

Peraeopods 3–5. *Cf.* Chilton's figure of peraeopod 3 in *A. novi-*

zealandiae (*loc. cit.*, fig. 3, *e*), but the spines on hind margin of 4th joint usually set in a tuft of setules, and 6th joint relatively longer.

Palp of maxilla 1 reaching to bases of the apical spines of outer lobe.

Telson cleft to base, apices of lobes subacute.

FAM. AORIDAE.

Aora typica Kröyer.

1916. Barnard, *loc. cit.*, p. 236 (references).
1926. Schellenberg, *loc. cit.*, p. 372, fig. 59 (forma *anomala*).
1932. Barnard, *loc. cit.*, p. 220, fig. 135 (forma *gibbula*).

Localities.—False Bay (Schellenberg; R.R.S. "Discovery"); Port Nolloth and Lambert's Bay (Prof. Stephenson, 1938).

Lembos leptocheirus Wlkr.

1909. Walker, Trans. Linn. Soc. Lond., vol. xii, p. 338, pl. xliii, fig. 7.
1926. Schellenberg, *loc. cit.*, p. 373.
1928. *Id.*, *loc. cit.*, p. 662.

Locality.—Simon's Bay (Schellenberg).

Distribution.—Port Said; Suez; British East Africa.

Lembos hypacanthus Brnrd.

1925. Schellenberg, *loc. cit.*, p. 166.

Locality.—Swakopmund.

Lembos hirsutipes Stebb.

1895. Stebbing, Ann. Mag. Nat. Hist. (6), vol. xvi, p. 207, pls. viii, ix, B.
1925. Chevreux, Bull. Soc. zool. France, vol. l, p. 373.

Distribution.—Dakar, Senegal.

Gen. *Grandidierella* Coutière.

1904. Coutière, Bull. Soc. Philom., ser. 9, vol. vi, pp. 166, 173.
1908. Stebbing, Rec. Ind. Mus., vol. ii, p. 120.
1921. Chilton, Mem. Ind. Mus., vol. v, p. 548.
1922. Tattersall, Mem. Asiat. Soc. Bengal, vol. vi, p. 455.
1925. Chevreux, Bull. Soc. zool. France, vol. l, p. 392.
1925. Schellenberg, *loc. cit.*, p. 166.

1933. Stephensen, Zool. Jahrb. Abt. Syst., vol. lxiv, pp. 434, 446.
1935. Shoemaker, J. Wash. Ac. Sci., vol. xxv, p. 65.
1935. Barnard, Rec. Ind. Mus., vol. xxxvii, p. 295.
1936. Schellenberg, Zool. Anz., vol. cxvi, p. 154.
1938. *Id.*, K. Sv. Vet. Ak. Handl., vol. xvi, p. 90 (transferred to *Corophiidae*).

Grandidierella lignorum Brnrd.

1935. Barnard, *loc. cit.*, p. 300, fig. 14.

Locality.—Keurbooms River, Plettenberg Bay (K. H. B., Jan. 1931, ♂♂, ♀♀ under water-logged tree-trunks and driftwood in estuary); Zoetendal Vlei, Bredasdorp Division (A. C. Harrison, July 1937).

FAM. PHOTIDAE.

Photis uncinata Brnrd.

1916. Barnard, *loc. cit.*, p. 243, pl. xxviii, fig. 26 (*longicaudata*, non Bate and Westw.).
1932. *Id.*, *loc. cit.*, p. 223, fig. 138.

Photis longimanus Wlkr.

1925. Schellenberg, *loc. cit.*, p. 175.

Locality.—Luderitzbucht.

Eurystheus palmoides Brnrd.

1932. Barnard, *loc. cit.*, p. 231, fig. 144.

Locality.—Simon's Bay (R.R.S. "Discovery").

Eurystheus imminens Brnrd.

1916. Barnard, *loc. cit.*, p. 250, pl. xxviii, fig. 12.
1937. *Id.*, John Murray Exp. Rep., vol. iv, p. 165, fig. 11.

Distribution.—Red Sea.

Eurystheus afer (Stebb.).

1916. Barnard, *loc. cit.*, p. 249, pl. xxviii, fig. 11.
1928. Schellenberg, Tr. Zool. Soc. Lond., vol. xxii, p. 662.
1937. Barnard, *loc. cit.*, p. 165, fig. 12.

Distribution.—Gulf of Suez and Zanzibar area.

Remarks.—*Cf.* Monod, 1937, Mem. Inst. d'Egypte, vol. xxxiv, p. 10, fig. 10, *b*.

Cheiriphotis megacheles (Giles).

1937. Barnard, *loc. cit.*, p. 167, fig. 14 (references and synonymy).

Distribution.—Bay of Bengal, Ceylon, East Indies.

Fam. AMPITHOIDAE.

Ampithoë ramondi (Audouin).

1826. Audouin, Expl. Pl. Crust. Descr. Egypte, vol. i, p. 93.
1916. Barnard, *loc. cit.*, p. 253 (*vaillantii*) (references).
1928. Schellenberg, *loc. cit.*, p. 665.
1937. Barnard, John Murray Exp. Rep., vol. iv, p. 170.
1938. Pirlot, Siboga Exp. monogr., vol. xxxiii *f*, p. 346.

Additional Localities.—Port Nolloth and Lambert's Bay (Prof. Stephenson, 1938).

Distribution.—Atlantic to Azores, Mediterranean; Indian Ocean, Southern Pacific.

Ampithoë falsa Brnrd.

1916. Barnard, *loc. cit.*, p. 255, pl. xxviii, fig. 34 (*brevipes*, non Dana).
1932. *Id.*, *loc. cit.*, p. 240.
1937. *Id.*, *loc. cit.*, p. 170, fig. 16.

Locality.—Still Bay (Prof. T. A. Stephenson, 1935).

Distribution.—Gulf of Aden, and Central Arabian Sea, on driftweed.

Gen. *Cymadusa* Sav.

1816. Savigny, Mem. An. sans Vert., vol. i, p. 109.
1868. Czerniavski, Syezda Russ. Est. Syezda I. Zool., p. 103 (*Grubia*).
1916. Barnard, *loc. cit.*, p. 257 (references) (*Grubia*).
1938. Pirlot, Siboga Exp. monogr., vol. xxxiii *f*, p. 348.

Cymadusa australis (Brnrd.).

1916. Barnard, *loc. cit.*, p. 258.

Locality.—Knysna Lagoon (C. W. Thorne, 1938).

Macropisthopous stebbingi Brnrd.

1916. Barnard, *loc. cit.*, p. 260, pl. xxviii, figs. 15–17.

Localities.—Sea Point, Table Bay (K. H. B., March 1928); Still Bay (Prof. T. A. Stephenson, 1935).

Fam. JASSIDAE.

Ischyrocerus gorgoniae n. sp.

(Fig. 35.)

♂.—Body strongly triquetral in cross-section anteriorly; in dorsal view resembling a member of the family *Phliantidae.* Head not carinate. Peraeon smooth, medio-dorsally carinate on segments 1–6; the keel on segment 1 moderate, those on segments 2–5 strong, and that on segment 6 feeble. Peraeon segment 7 and pleon not carinate. Side-plate 1 small, deeper than long, subtriangular; 2 very large, much deeper than long, ovoid; 3 and 4 deeper than long, oblong, antero-inferior corner rounded, postero-inferior corner quadrate; 5 with deep incision between the lobes, the hind lobe much the smaller; 6 similar to 5 but smaller; 7 small, ovoid. Postero-inferior angle of pleon segment 3 rounded. Telson broader than long, apically obtuse, a spinule on each lateral margin.

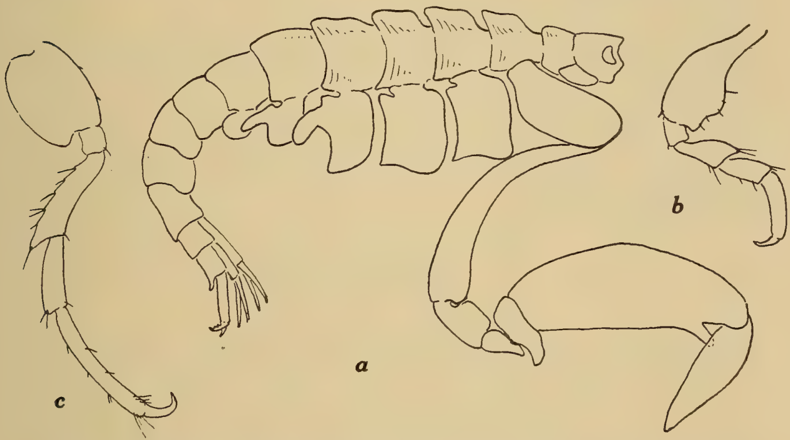

Fig. 35.—*Ischyrocerus gorgoniae* n. sp. *a*, animal, ♂, with gnathopod 2. *b*, peraeopod 1. *c*, peraeopod 5.

Antenna 1 with 2-jointed accessory flagellum, the 2nd joint minute, flagellum missing. Antenna 2 missing. Mouth-parts typical.

Gnathopod 1 as in *megalops* Sars (Crust. Norw., vol. i, pl. 210, fig. 2).

Gnathopod 2, 2nd joint very long, curved, margins entire, antero-distal corner moderately lobed, 3rd with anterior margin lobed, 6th elongate ovate, upper margin convex, lower margin straight, with a narrow subacute tooth near hinge, finger a thin cultrate plate, lanceolate, unguis indistinguishable (the finger may be abnormal in shape, the hand of the other gnathopod is missing).

Peraeopods 1 and 2, 2nd joint flask-shaped, antero-distal margin expanded.

Peraeopods 3–5 slender, 2nd joint rather broadly oval, 6th joint relatively longer than in any of Sars (*loc. cit.*) figures.

Uropods typical.

Length.—4·5 mm.

Colour.—(As preserved) chalky-white, eyes darker.

Locality.—Somerset Strand, False Bay. 1 ♂, Sept. 1926, found on a piece of Red Fan-coral, *Gorgonia flammea.*

Remarks.—This species is remarkable for its Phliantid appearance in dorsal view, and the dorsal carination, which is much stronger than in *carinatus* Brnrd.

Fam. COROPHIIDAE.

Gen. *Corophium* Latr.

1934. Shoemaker, Proc. Biol. Soc. Wash., vol. xlvii, pp. 23 *sqq.*

Corophium acherusicum Costa.

1916. Barnard, *loc. cit.*, p. 272.
1917. Stebbing, Ann. Durban Mus., vol. i, p. 448.
1928. Schellenberg, *loc. cit.*, p. 672.
1931. *Id.*, Swed. Antarct. Exp., vol. ii, p. 259, footnote.
1934. Shoemaker, *loc. cit.*, p. 24.

Schellenberg identifies the European *acherusicum* with the earlier *cylindricum* Say, but Shoemaker does not accept this on the ground that Say's species is not recognisable with certainty.

Corophium triaenonyx Stebb.

1904. Stebbing, Spolia Zeylanica, vol. ii, p. 25, pl. vi, A.
1921. Chilton, Mem. Ind. Mus., vol. v, p. 555.
1935. Barnard, Rec. Ind. Mus., vol. xxxvii, p. 305.

Locality.—Keurbooms River, Plettenberg Bay, in water-logged tree-trunks and drift wood, in the estuary and as far up as the river is tidal (Whisky Creek) (K. H. B., Jan. 1931, ♂♂, ovig. ♀♀, and juv.); Knysna River (K. H. B., Nov. 1938, ♂♂, ovig. ♀♀); estuary of Klip Drifts Fontein stream, Potteberg, Bredasdorp district (A. C. Harrison, May 1936).

Distribution.—Ceylon; Chilka Lake; Cochin and Travancore coasts.

Cerapus abditus Templ.

1916. Barnard, *loc. cit.*, p. 271.

1938. Pirlot, Siboga Exp. monogr., vol. xxxiii *f*, p. 349, figs. 157, 158 (detailed figures).

Fam. PODOCERIDAE.

Gen. *Podocerus* Leach.

1937. Barnard, John Murray Exp. Rep., vol. iv, p. 174. (Key to species of the Indian region.)

Podocerus cristatus (Thomson).

1916. Barnard, *loc. cit.*, p. 276.

1925. Schellenberg, *loc. cit.*, p. 188.

1926. Chilton, Trans. New Zeal. Inst., vol. lvi, p. 513, fig. 2.

Locality.—Swakopmund (Schellenberg).

Podocerus inconspicuus (Stebb.).

1888. Stebbing, Challenger Rep., vol. xxix, p. 1194, pl. cxxxi.

1906. *Id.*, Das Tierreich, vol. xxi, p. 702.

1916. Barnard, *loc. cit.*, p. 277, pl. xxviii, fig. 23 (*palinuri*).

1937. *Id.*, *loc.cit.*, p. 175, fig. 18 (growth changes in gn. 2, ♂) (*palinuri*).

1938. Pirlot, Siboga Exp. monogr., vol. xxxiii *f*, p. 356, fig. 160.

Locality.—Port Nolloth (Prof. Stephenson, 1938, littoral, under stones).

Distribution.—South Arabian coast, Bay of Bengal, East Indies, Port Jackson.

Podocerus africanus Brnrd.

1916. Barnard, *loc. cit.*, p. 278, pl. xxviii, figs. 24, 25.

1925. *Id.*, *loc. cit.*, p. 367.

1937. *Id.*, *loc. cit.*, p. 176, fig. 19 (urop. 1, and growth changes in gn. 2, ♂).

Distribution.—South Arabian coast.

Fam. VIBILIIDAE.

Vibilia chuni Behn. and Wolt.

1912. Behning and Woltereck, Zool. Anz., vol. xli, p. 8.

1913. Stewart, Ann. Mag. Nat. Hist. (8), vol. xii, p. 251, pl. vi (*hodgsoni*).

1925. Behning, Deutsche Tiefsee Exp., vol. xix, p. 496, figs. 68–79.
1925. Barnard, *loc. cit.*, p. 376 (*hodgsoni*).
1925. Stephensen, Rep. Dana Exp., vol. ii, D 5, p. 246 (? *chuni*).
1927. Behning, Deutsche Südpol. Exp., vol. xix, p. 120.
1932. Barnard, *loc. cit.*, p. 262 (*hodgsoni, sp. dubia*).

Although Behning does not refer either in 1925 or 1927 to Miss Stewart's species, I think Stephensen is correct in identifying it with *chuni*; as Behning says, the 7th peraeopod is very distinctive.

Distribution.—Equatorial and Southern Atlantic.

FAM. PHRONIMIDAE.

Phronima atlantica Guérin.

1901. Vosseler, Hyperiidae Plankton Exp., vol. ii, p. 21, pl. ii, figs. 1–10.
1932. Barnard, *loc. cit.*, p. 285.

Locality.—Several ♀♀ and 2 ♂♂ washed ashore at Durban, 9/7/32 (H. W. Bell-Marley).

Distribution.—Cosmopolitan.

Phronima colletti Bov.

1887. Bovallius, Bih. K. Sv. Vet. Ak. Handl., vol. xi, p. 25.
1887. Giles, J. Asiat. Soc. Bengal, vol. lvi, p. 215, pl. iii, figs. 1, 2 (*bucephala*).
1901. Vosseler, *loc. cit.*, p. 32, pl. iii, figs. 8–10, pl. iv, figs. 1–3.
1932. Barnard, *loc. cit.*, p. 286.

Locality.—One ♂ along with the previous species, Durban, 9/7/32 (H. W. Bell-Marley).

Remarks.—Bovallius (1889, K. Sv. Vet. Ak. Handl., vol. xxii, p. 378) gives the date of Giles' species as 1888, though on pp. 346 and 351 he gives it correctly as 1887. Bovallius' paper was received at the British Museum (Nat. Hist.) library in October, whereas Giles' paper was not published until November 2nd, so there is no question as to the priority of Bovallius' name.

Distribution.—Mediterranean, Atlantic 41° N. –35° S., Indo-Pacific.

Phronimella elongata Claus.

1887. Giles, *loc. cit.*, p. 217, pl. iii, fig. 3 (*hippocephala*).
1888. Stebbing, Challenger Rep., vol. xxix, p. 1362, pl. clxiii.
1889. Bovallius, K. Sv. Vet. Ak. Handl., vol. xxii, p. 389, pl. xvi, figs. 51–67.

1932. Barnard, *loc. cit.*, p. 286.

Locality.—One ♂, 6 ♀♀ washed ashore at Durban, 9/7/32 (H. W. Bell-Marley).

Distribution.—Mediterranean, Atlantic 43° N.–37° S., Indo-Pacific, Antarctic.

FAM. OXYCEPHALIDAE.

Oxycephalus clausi Bov.

1887. Bovallius, Bih. K. Sv. Vet. Ak. Handl., vol. xi, p. 35.
1890. *Id.*, The Oxycephalids, p. 60, pl. i, figs. 19–24, pl. ii, fig. 1.
1923. Stebbing, Fish. Mar. Surv. Spec. Rep., 3, p. 11.
1932. Barnard, *loc. cit.*, p. 294.

Localities.—One ♀ Algoa Bay (s.s. "Pieter Faure"); one ♀ washed ashore at Hout Bay, Cape Peninsula, 1917; several ♂♂ and ♀♀ washed ashore at Durban, 9/7/32 (H. W. Bell-Marley).

Oxycephalus latirostris Claus.

1879. Claus, Gatt. Platysceliden, p. 193.
1887. *Id.*, Die Platysceliden, p. 71, pl. xxiv, fig. 1.
1890. Bovallius, *loc. cit.*, p. 66, pl. ii, figs. 7–12, and text-fig. 84.

The rostrum is more acute than in Bovallius' figure (pl. ii, fig. 7). The telson extends to the level of the apex of outer ramus of uropod 3, and almost to that of the inner ramus.

Locality.—One ♀ washed ashore at Durban, 9/7/32 (H. W. Bell-Marley).

Distribution.—Subtropical Atlantic and Indian Oceans.

Glossocephalus milne-edwardsi Bov.

1887. Bovallius, *loc. cit.*, p. 35.
1888. Giles, J. Asiat. Soc. Bengal, vol. lvii, p. 250, pl. vi (*Elsia indica*).
1890. Bovallius, *loc. cit.*, p. 106, pl. v, fig. 5, and text-figs. 6, 6*a*, 71.
1931. Barnard, Gt. Barrier Reef Exp., vol. iv, p. 131.

The lower (hind) margin of 6th joint of peraeopods (gnathopods) 1 and 2 is smooth, as in Walker's Ceylon specimens, and those from the Barrier Reef.

Locality.—One ♂ washed up at Durban, 9/7/32 (H. W. Bell-Marley).

Distribution.—Mediterranean, tropical Atlantic, Indian Ocean.

Streetsia pronoides (Bov.).

1887. Bovallius, Bih. K. Sv. Vet. Ak. Handl., vol. xi, no. 16, p. 36.
1888. Stebbing, *loc. cit.*, p. 1603, pl. ccvii (*challengeri*).
1925. Stephensen, Dan. ocean. Exp., vol. ii, D 5, p. 194, fig. 75 (growth-changes and synonymy) (*challengeri*).
1932. Barnard, *loc. cit.*, p. 295 (*challengeri*).
1938. Pirlot, Siboga Exp. monogr., vol. xxxiii *f*, p. 369 (synonymy).

Locality.—One immature ♀ washed up at Durban, 9/7/32 (H. W. Bell-Marley).

Distribution.—Mediterranean, Atlantic, 41° N.–19° S., Indo-Pacific.

Rhabdosoma whitei Bate.

1927. Spandl, Deutsch. Südpol. Exp., vol. xix (zool. xi), p. 208, fig. 31, *a–f* (typo. error, *withei*).
1932. Barnard, *loc. cit.*, p. 296.
1933. Schellenberg, Zool. Anz., vol. ciii, p. 154, figs. 1–4 (brood-lamellae).

Locality.—Many specimens washed ashore at Durban, 9/7/32 (H. W. Bell-Marley).

Distribution.—Atlantic, Indo-Pacific.

Fam. CAPRELLIDAE.

Gen. *Pseudaeginella* Mayer.

1890. Mayer, F. u. Fl., Golf, Naples, vol. xvii, p. 37.

Pseudaeginella tristanensis (Stebb.).

1932. Barnard, Discovery Rep., vol. v, p. 300, fig. 166.

Locality.—East London, littoral (Prof. T. A. Stephenson, July 1937, 3 ♂♂, 3 ♀♀).

Distribution.—Tristan d'Acunha.

Remarks.—The largest ♂ (6 mm.) is larger than any specimens yet recorded, but the hand of gnathopod 2 does not differ from my 1932 figure, except that there is a distinct tooth on the distal anterior margin of the 2nd joint. This tooth is much less distinct in the ♀ (ovig. ♀ 3·5 mm.).

This one difference, without more material from both localities, scarcely justifies specific separation.

KEYS TO THE IDENTIFICATION OF SOUTH AFRICAN TANAIDACEA, ISOPODA (MARINE AND FRESHWATER), AND AMPHIPODA.

NOTES ON THE KEYS.

In the family keys where a family contains more than one (South African) genus and/or species the page number is given on which will be found the key to the genera and/or species; and similarly in the case of genera containing more than one species. Where a family, or genus, contains only one genus, or species respectively, the student is referred to the list of species.

In the *Isopoda* the only important family not represented in South African waters is the *Serolidae*. Some minor families allied to the *Eurydicidae* and *Corallanidae* are not included in the key, although it is quite possible that eventually they will be found in the warmer waters of Natal and Portuguese East Africa.

In the *Gammaridea* the two families *Pleustidae* and *Sebidae* are included [in square brackets], although not yet definitely recorded from South Africa. Certain other families of minor importance are not included, mainly for geographical reasons; for these families, see Stebbing, Das Tierreich, xxi, 1906.

All the families of *Phronimidea* (*Hyperiidea*), except a few aberrant ones like the *Mimonectidae* and *Chuneolidae*, are included, because many of these pelagic forms are likely to be found, sooner or later, within the South African region. References to such species not yet recorded from South African waters and to the relevant literature will be found in Spandl, 1927 (German South Polar Expedition reports), Barnard, 1930 ("Terra Nova" reports), and Barnard, 1932 ("Discovery" reports).

In the *Gammaridea* and *Cyamidea* it is customary to reckon the two anterior pairs of legs as *gnathopods*, so that the seven pairs of legs comprise: gnathopods 1 and 2, peraeopods 1–5. In the *Phronimidea* (*Hyperiidea*), however, owing probably to the fact that the anterior legs are so frequently simple and in no way prehensile (subchelate or chelate), it is customary to speak of peraeopods 1–7.

As the *Amphipoda* are perhaps the more difficult group to identify, a few explanatory figures are given to illustrate particular differential characters utilised in the keys.

1 A distinct carapace embracing the true head and first two peraeon segments, and overhanging laterally to form a branchial chamber. Maxilliped with an epipodial process lying in the branchial chamber. First pair of the 7 pairs of peraeopods chelate. Uropods slender and terminal . . . . *Tanaidacea* (=*Chelifera*).

No distinct carapace, the apparent "head" composed of the true head plus the 1st (rarely also the 2nd) peraeon segment coalesced. Maxilliped usually without epipodial process; the latter when present not in a branchial chamber . . . 2.

2 Dorso-ventrally depressed (in *Phreatoicidae* the pleon is laterally compressed). Pleopods, when present, lamellar, branchial in function (heart in the pleon) . . . . *Isopoda.*

Laterally compressed (except the *Cyamidae*, whale-lice). Branchiae attached to bases of some of the peraeopods (heart in the peraeon). Pleopods, when fully developed, divided into two sets, the first 3 pairs natatory, the last 2 pairs similar to the uropods, with unsegmented rami . . . . . . *Amphipoda.*

List of South African Tanaidacea (=*Chelifera*).

Tanaidae. *Tanais philetaerus* Stebb.
,, *annectens* Brnrd.
,, (*Anatanais*) *gracilis* Heller (syn.: *spongicola* Brnrd.).
Paratanais euelpis Brnrd.
Leptochelia savignyi (Kröyer) (syn.: *dubia* Kröyer).
Haplocope oculatus Stebb.
Agathotanais ingolfi Hansen.
Heterotanais (?) *capensis* Vanhöffen.

Apseudidae. *Apseudes grossimanus* N. and S.
,, *agulhensis* Brnrd.
,, *avicularia* Brnrd.
,, *austro-africana* Brnrd. (=*australis* Brnrd., non Haswell).
Trichapseudes tridens Brnrd.
Sphyrapus malleolus N. and S.

Key to the families of *Tanaidacea*

(after Richardson, Bull. U.S. Nat. Mus., No. 54, 1905).

Body scarcely attenuated behind. First antenna with only one flagellum. Mandible without palp. First maxilla with only a single lobe and a 1-jointed palp; second maxilla quite rudimentary. Epipod of maxilliped narrow, falciform . . . . *Tanaidae*, p. 489.

Body narrow, elongate. First antenna with 2 flagella. Mandible with 3-jointed palp. First maxilla with 2 lobes and a 2-jointed palp; second maxilla well developed and setose. Epipod of maxilliped large, laminar. Second peraeopod with large, broad, flat hand . . . . *Apseudidae*, p. 489.

Key to the genera of *Tanaidae*.

1	Three pairs of pleopods. Uropods uniramous. Brood pouch formed of only one pair of plates, arising from bases of 5th peraeopods. Eyes present	*Tanais*, p. 489.
	Five pairs of pleopods. Brood pouch normal. (In *Agathotanais* pleopods absent and brood pouch unknown)	2.
2	Uropods biramous	3.
	Uropods rudimentary. Antenna 2 rudimentary. Eyes absent	*Agathotanais.*
3	Rami of uropod subequal, both 2-jointed. First peraeopod similar in both sexes	*Paratanais.*
	Outer ramus of uropod very small, inner ramus with several joints. First peraeopod dissimilar in ♂ and ♀	4.
4	Pleopods biramous	5.
	Pleopods uniramous (♀)	*Haplocope.*
5	Peraeopod 1 ♂ slender, elongate, chelate, 6th joint with forwardly produced "thumb"	*Leptochelia.*
	Peraeopod 1 robust, imperfectly chelate, 6th joint with backwardly directed process	*Heterotanais.*

Key to the species of *Tanais*.

1	Six pleon segments (*Anatanais*). Uropod 5–6-jointed. 6th joint of maxilliped narrow	*gracilis.*
	Five pleon segments (*Tanais* s.s.). Uropod 4-jointed	2.
2	Carapace broader than long. 6th joint of maxilliped ovate	*annectens.*
	Carapace longer than broad	*philetaerus.*

Key to the genera of *Apseudidae*.

1	Six free peraeon segments. Antenna 2 with scale at end of 2nd joint	2.
	Five free peraeon segments. Antenna 2 without scale	*Sphyrapus.*
2	Neither the small mandibular palp nor the maxilliped fringed with plumose setae. Five (normally) pairs of pleopods	*Apseudes*, p. 489.
	Both the large mandibular palp and the maxilliped fringed with plumose setae. Three pairs of pleopods	*Trichapseudes.*

Key to the species of *Apseudes*.

1	Rostrum tridentate	*grossimanus.*
	Rostrum simple	2.
2	Rostrum with acute apex and sinuous, entire margins	3.
	Rostrum with straight, serrate margins	*deltoides.*
3	Pleon segments 1–5 laterally with spiniform processes	*austro-africana.*
	Pleon segments laterally obtuse	4.
4	Telson apically obtuse	*agulhensis.*
	Telson apically acutely produced; 6th pleon segment with 2 acute tubercles	*avicularia.*

List of South African Marine and Freshwater *Isopoda.*

(For Terrestrial *Isopoda* see Barnard, 1932, Ann. S. Afr. Mus., xxx.)

Flabellifera or *Cymothoidea.*

Gnathiidae.

- *Gnathia africana* Brnrd.
  - ,, *spongicola* Brnrd.
  - ,, ,, var. *minor* Brnrd.
  - ,, *disjuncta* Brnrd.
  - ,, *cryptopais* Brnrd.
  - ,, *aureola* Stebb. (juv. =*Praniza* form).

Anthuridae.

- *Exanthura macrura* Brnrd.
  - ,, *filiformis* (Lucas).
- *Haliophasma tricarinata* Brnrd.
  - ,, *coronicauda* Brnrd.
  - ,, *hermani* Brnrd.
  - ,, *foveolata* Brnrd.
  - ,, *pseudocarinata* Brnrd.
- *Malacanthura linguicauda* (Brnrd.).
- *Anthelura remipes* Brnrd.
- *Cyathura carinata* (Kröyer) (syn. *estuarius* Brnrd.).
- *Apanthura sandalensis* Stebb. (syn. *dubia* Brnrd.).
  - ,, *africana* Brnrd.
- *Panathura serricauda* Brnrd.
- *Mesanthura catenula* (Stimpson).
- *Leptanthura laevigata* (Stimpson) (syn. *faurei* Brnrd.).
- *Paranthura punctata* (Stimpson).
- *Pseudanthura lateralis* Richardson.

Eurydicidae (*Cirolanidae* auct.).

- *Eurydice longicornis* (Studer).
- *Excirolana natalensis* (Vanhöffen).
- *Pontogeloides latipes* Brnrd.
- *Gnatholana mandibularis* Brnrd.
- *Cirolana hirtipes* M. Edw.
  - ,, *virilis* Brnrd.
  - ,, *natalensis* Brnrd.
  - ,, *sulcata* Hansen.
  - ,, *parva* Hansen.
  - ,, *cranchii* Leach (syn. *vicina* Brnrd. and ? *Eurydice latistylis* Vanhöffen, non Dana).
  - ,, *meinerti* Brnrd.
  - ,, *undulata* Brnrd.
  - ,, *venusticauda* Stebb.
  - ,, ,, var. *simplex* Brnrd.
  - ,, *littoralis* Brnrd.
  - ,, *fluviatilis* Stebb.

Cirolana theleceps Brnrd.
  ,, *rugicauda* Heller.
  ,, *cingulata* Brnrd.
  ,, *palifrons* Brnrd.
  ,, *luciae* Brnrd.
  ,, *bovina* Brnrd.
  ,, *incisicauda* Brnrd.
Conilorpheus scutifrons Stebb.

Corallanidae.
Corallana africana Brnrd.
Lanocira gardineri Stebb. (syn. *capensis* Brnrd.).

Bathynomidae.
Parabathynomus natalensis Brnrd. (1924, Fish. Mar. Biol. Surv. Union S. Afr. Rep., 4, p. 2, figs.).

Aegidae.
Aega webbii (Guérin).
  ,, *semicarinata* Miers (syn. *urotoma* Brnrd.).
  ,, *monophthalma* Johnston.
  ,, *gracilipes* Hansen.
  ,, *monilis* Brnrd.
  ,, *antillensis* Sch. and Mein.
Rocinela dumerilii (Lucas).
  ,, *orientalis* Sch. and Mein.
  ,, *granulosa* Brnrd.

Cymothoidae.
Nerocila orbignyi (Guér. Mén.).
  ,, *serra* Sch. and Mein.
  ,, *trichiura* (Miers).
  ,, *phaeopleura* Blkr.
Anilocra capensis Leach.
  ,, *leptosoma* Blkr.
Codonophilus imbricata (Fabr.).
Cteatessa retusa Sch. and Mein.
Cymothoa borbonica Sch. and Mein.
Irona melanosticta Sch. and Mein.
Cinusa tetrodontis Sch. and Mein.
Livoneca raynaudii M. Edw.

Limnoriidae.
Limnoria lignorum (Rathke).

Sphaeromidae.
Sphaeroma terebrans Bate.
  ,, *walkeri* Stebb.
  ,, *annandalei* Stebb.
Exosphaeroma hylecoetes Brnrd.
  ,, *planum* Brnrd.
  ,, *brevitelson* Brnrd.
  ,, *varicolor* Brnrd.

Exosphaeroma laeviusculum (Heller).
,, *truncatitelson* Brnrd.
,, *antikraussi* Brnrd.
,, *kraussii* Tattersall.
,, *pallidum* Brnrd.
,, *porrectum* Brnrd.
Pseudosphaeroma barnardi Monod.
[*Isocladus tristensis* (Leach). Tristan d'Acunha.]
Zuzara furcifer Brnrd.
Parisocladus stimpsoni (Heller).
,, *perforatus* (M. Edw.).
Sphaeramene polytylotos Brnrd.
Dynoides serratisinus Brnrd.
Paracilicaea mossambicus Brnrd.
Cilicaea latreillei Leach.
Cymodoce tuberculosa Stebb. var. *tripartita* Rich.
,, *falcata* Brnrd.
,, *uncinata* Stebb.
,, *unguiculata* Brnrd.
,, *umbonata* Brnrd.
,, *amplifrons* Stebb.
,, *acanthiger* Brnrd.
,, *africana* Brnrd.
,, *valida* (Stebb.).
,, *comans* Brnrd.
,, *setulosa* (Stebb.).
,, *cryptodoma* Brnrd.
,, *tetrathele* Brnrd.
,, *japonica* Rich. var. *natalensis* Brnrd.
,, *cavicola* Brnrd.
,, *excavans* Brnrd.
Dynamenella dioxus Brnrd.
,, *scabricula* (Heller).
,, *bicolor* Brnrd.
,, *australis* Richardson.
,, *australoides* Brnrd.
,, *macrocephala* (Krauss).
,, *taurus* Brnrd.
,, *huttoni* (Thomson).
,, *ovalis* Brnrd.
,, *navicula* Brnrd.
Cymodocella sublevis Brnrd.
,, *pustulata* Brnrd.
,, *cancellata* Brnrd.
,, *algoensis* (Stebb.) (species *dubia*, juv.).
Cassidias africana Brnrd.
Parasphaeroma prominens Stebb.
Artopoles natalis Brnrd.
Stathmos coronatus Brnrd.

Idoteoidea or *Valvifera.*

Idoteidae.

Idotea metallica Bosc.
,, *indica* M. Edw.
Euidotea peronii (M. Edw.).
Paridotea ungulata (Pallas).
,, *reticulata* Brnrd.
,, *rubra* Brnrd.
,, *fucicola* Brnrd.
Engidotea lobata (Miers).
Synidotea hirtipes (M. Edw.).
,, *setifer* Brnrd.
,, *variegata* Cllge.
Glyptidotea lichtensteinii (Krauss).
Cleantis natalensis Brnrd.

Pseudidoteidae.

Holidotea unicornis Brnrd.

Astacillidae.

Astacilla mediterranea Koehler.
,, *bacillus* Brnrd.
Arcturella corniger (Stebb.) (syn. *hirsuta* Brnrd. and *Astacilla setosa* Vanhöffen).
,, ,, var. *subglaber* Brnrd.
,, *lineata* (Stebb.).
,, *pustulata* Brnrd.
,, *longipes* Brnrd.
,, *brevipes* Brnrd.
,, *lobulata* Brnrd.
Arcturina hexagonalis Brnrd.
Antarcturus kladophoros Stebb.
,, *similis* Brnrd.
Neoarcturus oudops Brnrd.
Pleuroprion chuni (zur Strassen).
Idarcturus platysoma Brnrd.

Asellota or *Aselloidea.*

Stenetriidae.

Stenetrium crassimanus Brnrd.
,, *diazi* Brnrd.
,, *bartholomei* Brnrd.
,, *dagama* Brnrd.
,, *dalmeida* Brnrd.
,, *saldanha* Brnrd.
,, *syzygus* Brnrd.

Jaeridae.

Jaera pusilla Brnrd.
Austrofilius serrata (Brnrd.) (? syn. *A. furcatus* Vanhöffen, non Hodgson).

Jaeropsis curvicornis (Nicolet).
Janira capensis Brnrd.
  ,, *angusta* Brnrd.
  ,, *exstans* Brnrd.
Ianiropsis palpalis Brnrd.
Iais pubescens (Dana).
Haploniscus dimeroceras Brnrd.
Pseudojanira stenetrioides Brnrd.
Protojanira prenticei Brnrd. (freshwater).

Munnidae.
Paramunna laevifrons Stebb.
  ,, *concavifrons* Brnrd.
  ,, *capensis* Vanhöffen.
Kuphomunna rostrata Brnrd.
Antias uncinatus Vanhöffen.

Munnopsidae.
Munnopsurus mimus Brnrd.
Pseudomunnopsis beddardi (Tattersall).
Eurycope sulcifrons Brnrd.
  ,, *quadrata* Brnrd.
  ,, *fusiformis* Brnrd.
Ilyarachna affinis Brnrd.
  ,, *crassiceps* Brnrd.

Desmosomidae.
Eugerda sp.
Ilychthonos capensis Brnrd.
Macrostylis spiniceps Brnrd.
Rhabdomesus bacillopsis Brnrd.

Phreatoicidea.

Phreatoicidae.
Phreatoicus capensis Brnrd.
  ,, ,, var. *abbreviatus* Brnrd.
  ,, ,, var. *depressus* Brnrd.
  ,, ,, var. *penicillatus* Brnrd.

Bopyroidea or *Epicaridea.*

Bopyridae.
Scyracepon levis Brnrd. On *Scyramathia.*
Pseudione munidae Brnrd. } On *Galatheidea.*
  ,, *crenulata* Sars. } On *Galatheidea.*
  ,, sp. On *Upogebia africana.*
Palaegyge plesionikae Brnrd. On prawns.
Bathygyge grandis Hansen On *Glyphocrangon.*
Paragigantione papillosa Brnrd. On *Galatheidea.*
Hemiarthrus nematocarcini Stebb. On prawns.
Epipenaeon japonicum Thielemann. On prawns.

Dajidae.

Zonophryxus quinquedens Brnrd. On prawns.

Cryptoniscidae.

Cyproniscus crossophori Stebb. On *Ostracoda.*
Clypeoniscus stenetrii Brnrd. On *Isopoda.*
Aegoniscus gigas Brnrd. On *Isopoda.*
Liriopsis sp. (Brady, 1914, Ann. Durban Mus., i). On parasitic Cirripedes on hermit-crabs.

Incertae sedis.

Microniscus ornatus Vanhöffen (a free-swimming larval stage, adult?).
Gen. et sp. incert. (Barnard, 1920, fig.). On *Isopoda.*

Key to the suborders of *Isopoda.*

(Modified after G. O. Sars, Crustacea Norway, ii, 1896.)

1	Uropods lateral	2.
	Uropods terminal or subterminal	3.
2	Uropods forming together with the last pleon segment (telson) a caudal fan	*Cymothoidea* or *Flabellifera*, p. 495.
	Uropods valve-like, inflexed ventrally and arching over the pleopods	*Idoteoidea* or *Valvifera*, p. 506.
3	Pleopods modified for air-breathing. Terrestrial, inland and littoral, forms	*Oniscoidea.*
	Pleopods not modified for air-breathing. Marine and fresh-water forms	4.
4	Pleopods usually covered by a thin opercular plate (the modified 1st pair of pleopods)	*Aselloidea* or *Asellota*, p. 509.
	Pleopods never covered by an opercular plate	5.
5	Pleon laterally compressed. Free-living, fresh-water forms	*Phreatoicidea.*
	Pleon depressed. Parasitic forms, with free-swimming larval stages, marine	*Bopyroidea* or *Epicaridea*, p. 513.

For descriptive account, with keys, of the *Oniscoidea* (Woodlice) see Barnard, 1932, Ann. S. Afr. Mus., xxx; additional species, Ann. Natal Mus., viii, p. 155, 1937.

Key to the families of *Cymothoidea* (*Flabellifera*)

(after Richardson, 1905, Bull. U.S. Nat. Mus., No. 54).

1	Adult with 5 free peraeon segments and only 5 pairs (2nd–6th) of normal peraeopods; peraeopod 1 modified, peraeopod 7 wanting. Juvenile stage parasitic on fishes	*Gnathiidae*, p. 496.
	Adult with 7 free peraeon segments and usually 7 pairs of peraeopods	2.

2	Body narrow, cylindrical. Uropod with outer ramus arching dorsally over the telson. (*Pseudanthura* has rudimentary outer ramus, but the body-form throughout the family is distinctive)	*Anthuridae*, p. 497.
	Body normal, depressed. Uropod normal, outer ramus lateral	3.
3	Pleon usually composed of 6 segments	4.
	Pleon composed of 2–4 segments	9.
4	Uropod with both rami well developed, usually lamellar	5.
	Uropod with outer ramus rudimentary, more or less unguiform. Boring in piles and floating timber	*Limnoriidae.*
5	Palp of maxilliped free, margins of last 2 joints more or less setose, never armed with hooks	6.
	Palp of maxilliped embracing the cone formed by the mouth-parts; apex armed with hooks, never setose	8.
6	No plumose branchial tufts on bases of pleopods. Eyes (when present) dorsal or lateral	7.
	Plumose branchial tufts on bases of pleopods. Eyes confined to the ventral surface	*Bathynomidae.*
7	Mandible with distal half stout and conspicuous, molar prominent	*Eurydicidae*, p. 498.
	Mandible with distal half narrow, more or less concealed by the upper and lower lips, molar much reduced	*Corallanidae*, p. 500.
8	Body symmetrical. Both antennae with well-defined peduncles and flagella. Pleopods setose. Rami of uropod large, more or less foliaceous	*Aegidae*, p. 500.
	Body often distorted. Both antennae reduced, without clear distinction between peduncle and flagellum. Pleopods not setose. Rami of uropod long or short, but always narrow	*Cymothoidae*, p. 501.
9	Pleon of 2 segments. Uropod with inner ramus immovable	*Sphaeromidae*, p. 501.
	Pleon of 4 segments. Both rami of uropod movable	[*Serolidae.*]

For an account of the *Serolidae*, a family confined to the Southern Hemisphere (with one exception), but which has not yet been found in South African waters, see Sheppard, 1933, "Discovery" Reports, vii.

Key to the species of *Gnathia*.

1	Frontal margin semicircularly produced forwards and downwards between bases of mandibles. 5th (4th free) peraeon segment not constricted medio-dorsally	*cryptopais.*
	Frontal margin transverse	2.

2	Fifth (4th free) peraeon segment in ♂ not divided medio-dorsally. Anterior margin of head in ♀ not notched	*africana.*
	Fifth peraeon segment in ♂ divided medio-dorsally. Anterior margin of head in ♀ notched	3.
3	Mandibles in ♂ denticulate on the straight inner margin	*spongicola* and var. *minor.*
	Mandibles with entire, convex inner margin	*disjuncta.*

G. aureola is founded on the juvenile or "*Praniza*" form.

Key to the genera of *Anthuridae*

(see Barnard, J. Linn. Soc. London, xxxvi, 1925).

1	Mouth-parts normal (lower lip with rounded lobes, mandible with dentate cutting-edge, and maxilla 1 with conspicuous spine-teeth). Statocysts paired, but sometimes absent	2.
	Mouth-parts modified (lower lip with acute lobes, mandibles apically acute, maxilla 1 slender, lancet-like). Sometimes a single statocyst, but usually none	10.
2	Fifth joint of peraeopods 4–7 not underriding 6th	3.
	Fifth joint of peraeopods 4–7 underriding 6th	7.
3	Maxilliped 4-jointed *	4.
	Maxilliped 5-jointed	5.
4	Pleon segments distinct	*Exanthura*, p. 497.
	Pleon segments fused	*Haliophasma*, p. 498.
5	Eyes present	6.
	Eyes absent	*Anthelura.*
6	Unguis of peraeopod 1 short	*Haliophasma*, p. 498.
	Unguis of peraeopod 1 long	*Malacanthura.*
7	Maxilliped 4-jointed	*Cyathura.*
	Maxilliped 5–6-jointed	8.
8	Pleon segments distinct	9.
	Pleon segments fused	*Mesanthura.*
9	Maxilliped 5-jointed	*Apanthura*, p. 498.
	Maxilliped 6-jointed	*Panathura.*
10	Outer ramus of uropod rudimentary	*Pseudanthura.*
	Outer ramus of uropod well developed	11.
11	With statocyst. 5th joint of peraeopods 4–7 underriding 6th	*Leptanthura.*
	No statocyst. 5th joint of peraeopods 4–7 not underriding 6th	*Paranthura.*

Key to the species of *Exanthura*.

Telson widening distally, truncate	*macrura.*
Telson ovate, with a median longitudinal keel	*filiformis.*

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* The basal joint, which is ankylosed to the head, is included.

Key to the species of *Haliophasma.*

1	Telson tricarinate	2.
	Telson not tricarinate	3.
2	Integument not pitted	*tricarinata.*
	Integument pitted	*foveolata.*
3	Telson obovate, apically upturned, with median keel	*hermani.*
	Telson ovate, dorsal surface wholly convex, with raised central portion like a flat hat, more or less surrounded by a rim	4.
4	Telson distinct from 6th pleon segment	*coronicauda.*
	Telson fused with 6th pleon segment	*pseudocarinata.*

Key to the species of *Apanthura.*

With eyes. Outer ramus of uropod apically indented	*sandalensis.*
Eyes absent. Outer ramus of uropod not indented	*africana.*

Key to the genera of *Eurydicidae.*

1	Fifth pleon segment with free lateral margins	2.
	Lateral margins of 5th pleon segment overlapped by those of the 4th segment. Inner apex of peduncle of uropod produced. Peduncle of antenna 2–5-jointed	4.
2	First joint of peduncle of antenna 1 extended straight in front, rest of antenna at right angles to it. Mandibular palp 3-jointed. Inner plate of maxilliped without coupling-hooks. Pleopods without accessory lobes. Inner apex of peduncle of uropod not produced	*Eurydice.*
	First joint of peduncle of antenna 1 not at right angles to rest of antenna. Inner plate of maxilliped with coupling-hooks. Pleopods with accessory lobes. Inner apex of peduncle of uropod produced	3.
3	Mandibular palp 3-jointed	*Excirolana.*
	Mandibular palp 2-jointed	*Pontogeloides.*
4	Mandibles very stout, projecting forwards. Frontal lamina not distinct from median process of head	*Gnatholana.*
	Mandibles not prominent. Frontal lamina distinct	5.
5	Antenna 2 distinctly longer than antenna 1. Frontal lamina not projecting prominently in front. Inner ramus of pleopod 1 broad. In ♂ stylet on pleopod 2 attached near base	*Cirolana,* p. 499.
	Both antennae short, second not much longer than first. Frontal lamina projecting prominently in front. Inner ramus of pleopod 1 narrow. In ♂ stylet on pleopod 2 attached far from base	*Conilorpheus.*

Key to the species of *Cirolana*.

1	Pleon segment 3 laterally overlapping both 4th and 5th segments	*rugicauda.*
	Pleon segment 3 not overlapping 4th, but 4th overlapping 5th	2.
2	Anterior margin of frontal lamina not free or produced	3.
	Anterior margin of frontal lamina free, somewhat produced, but not in the shape of a prominent horn or knob. 2nd joint of peraeopods 6 and 7 without long plumose setae	10.
3	Frontal lamina very narrow, linear. 2nd joints of peraeopods 6 and 7 with long plumose setae	4.
	Frontal lamina broad, pentagonal or subhexagonal. 2nd joints of peraeopods 6 and 7 without long plumose setae	6.
4	Side-plate 4 with postero-inferior angle quadrate	5.
	Side-plate 4 with postero-inferior angle rounded	*natalensis.*
5	Impressed line on hind margin of eyes continuous across the head. In ♂ stylet on pleopod 2 slender, straight	*hirtipes.*
	Impressed line on head not continuous. In ♂ stylet on pleopod 2 robust and strongly curved	*virilis.*
6	Telson with median longitudinal furrow	7.
	Telson dorsally smooth	9.
	Telson with 2 submedian basal tubercles, otherwise smooth	*bovina.*
7	Telsonic furrow strong. Apices of telson and uropods pointed	*sulcata.*
	Telsonic furrow shallow	8.
8	Apices of telson and uropods pointed	*palifrons.*
	Apices of telson and uropods rounded, with notches	*theleceps.*
9	Telsonic apex broadly rounded, with 8 spines	*parva.*
	Telsonic apex narrowly rounded or subacute, with 13–14 spines	*cranchii.*
	Telsonic apex narrowly rounded, with 7–8 spines; 2 bands of setae on dorsal surface	*meinerti.*
10	Frontal lamina subquadrate, as broad as, or broader than, long	11.
	Frontal lamina linguiform, rounded in front and slightly wider than at base	13.
11	Frontal lamina smooth. Telson with continuous median longitudinal keel	*undulata.*
	Frontal lamina with transverse ridge near front, apex at a lower level and meeting rostral point of head	12.
12	Pleon and telson unsculptured	*littoralis.*
	Pleon segments with transverse series of denticles. Telson with median series of denticles and several others basally and laterally	*venusticauda.*
	Pleon as in *venusticauda*. Telson with a single median denticle near base	*venusticauda* var. *simplex.*
	Telson apically incised	*incisicauda.*
13	Head and peraeon with transverse grooves and impressed lines of punctae	*cingulata.*
	Head smooth. Hinder peraeon segments with denticles or rugae	*fluviatilis.*
	Head, peraeon and pleon smooth	*luciae.*

Key to the genera of *Corallanidae*.

1	Bases of the antennae, at least the 1st joint, visible from above. 2nd joint of maxilliped much longer than broad.	*Corallana.*
	Bases of both antennae hidden by rostral projection of head. 2nd joint of maxilliped very little longer than broad .	2.
2	Maxilla 1 strongly falcate	*Lanocira.*
	Maxilla 1 unguiform, moderate	[*Argathona*].

Argathona is included owing to the likeness of *Eurydice latistylis* Vanhöffen, 1914 (non Dana), to a species of this genus.

Key to the genera of *Aegidae*.

1	Head with median point wholly or partly separating bases of 1st antennae. Frontal lamina usually large. Maxilliped not less than 6-jointed	*Aega*, p. 500.
	Head more or less covering bases of 1st antennae. Frontal lamina small. Maxilliped not more than 4-jointed .	2.
2	Eyes present. Pleon not much narrower than peraeon .	*Rocinela*, p. 500.
	Eyes absent. Pleon abruptly narrower than peraeon . .	*Syscenus.*

Key to the species of *Aega*.

1	First 2 joints of peduncle of antenna 1 much dilated, flattened; 2nd joint apically produced. Frontal lamina flat or concave	2.
	First 2 joints of peduncle of antenna 1 cylindrical, not dilated; 2nd joint not apically produced. Frontal lamina convex or compressed and elevated	5.
2	Bases of 1st antennae partly separated by rostral point .	3.
	Bases of 1st antennae completely separated by rostral point	*monophthalma.*
3	Inner apex of 6th joint of peraeopods 2 and 3 with a linguiform process	*webbii.*
	Inner apex of 6th joint of peraeopods 2 and 3 without such process	4.
4	Telson truncate	*semicarinata.*
	Telson pointed	*antillensis.*
5	Peraeopods very slender. Frontal lamina forming a transverse projecting plate. Side-plates acutely produced posteriorly	*gracilipes.*
	Peraeopods not very slender. Frontal lamina forming a rounded knob. Side-plates not acutely produced. .	*monilis.*

Key to the species of *Rocinela*.

1	Front of head with prominently produced subtriangular process over bases of antennae	*dumerilii.*
	Front of head not strongly produced	2.
2	Flagellum of antenna 2 14–16-jointed. Outer ramus of uropod apically rounded	*orientalis.*
	Flagellum of antenna 2 10–12-jointed. Outer ramus of uropod lanceolate, apically acute	*granulosa.*

Key to the genera of *Cymothoidae*.

1	Head not immersed in 1st peraeon segment. Anterior margin of latter trisinuate. Body symmetrical	2.
	Head immersed in 1st peraeon segment. Anterior margin of latter not trisinuate. Body more or less distorted	3.
2	Head broadly rounded in front	*Nerocila*, p. 501.
	Head distinctly narrowed in front	*Anilocra*, p. 501.
3	Bases of 1st antennae contiguous	4.
	First antennae not dilated, their bases separated	5.
4	Antenna 1 much dilated. Ungues of peraeopods short, stout. Inferior margin of side-plates 6 and 7 concave	*Codonophilus*.
	Antenna 1 compressed. Ungues long, strongly curved. Inferior margin of side-plates 6 and 7 convex	*Cteatessa*.
5	Pleon manifestly distinct from peraeon	6.
	Pleon and peraeon continuous	7.
6	Bases of 1st antennae widely separated	*Cymothoa*.
	Bases of 1st antennae narrowly separated	*Cinusa*.
7	Pleon very little immersed in peraeon	*Livoneca*.
	Pleon deeply immersed in peraeon	*Irona*.

Key to the species of *Nerocila*.

1	Inner ramus of uropod terete, slender, acute; outer ramus elongate	2.
	Inner ramus of uropod broader, margins subparallel, a tooth on inner apex; outer ramus not much longer than inner	3.
2	Outer ramus of uropod very long. Side-plates rounded behind; segments rounded postero-laterally	*trichiura*.
	Outer ramus of uropod elongate. Side-plates and segments acute behind	*phaeopleura*.
3	Postero-lateral angles of all peraeon segments acutely produced. Outer margin of inner ramus of uropod serrate	*serra*.
	Postero-lateral angles of only the 4 posterior segments more or less acutely produced. Outer margin of inner ramus of uropod smooth	*orbignyi*.

Key to the species of *Anilocra*.

Antenna 1 geniculate, the flagellum distinct from peduncle owing to enlargement of 3rd joint of latter	*leptosoma*.
Antenna 1 undifferentiated	*capensis*.

Key to the groups of *Sphaeromidae*.

Pleopods 4 and 5 with transverse pleats on the inner rami only, the outer rami thin and membranous	*Hemibranchiatae*, p. 502.
Pleopods 4 and 5 with pleats on both rami	*Eubranchiatae*, p. 505.
Pleopods 4 and 5 with both rami membranous	*Platybranchiatae*, p. 506.

Key to the genera of *Hemibranchiatae*.

1 Telsonic apex in ♀ without a notch, rounded or somewhat produced, more or less acute; in ♂ generally as in ♀, but sometimes much produced in the shape of a median process narrowed at its base. Mouth-parts in adult ♀ not modified . . . . . 2.

Telsonic apex in both sexes with a notch, usually stronger in ♂, frequently divided by a median lobe. Mouth-parts in adult ♀ modified.* Maxilliped with 4th–6th joints lobed. Outer ramus of pleopod 3 2-jointed. Marsupial plates overlapping in middle line . . . . 6.

Telsonic apex entire in ♀, in ♂ with a median slit, frequently widening anteriorly to a foramen. Mouth-parts in ♀ not modified. Maxilliped with 4th–6th joints lobed . . . . . . 8.

2 Maxilliped with 4th–6th joints not lobed. Peraeopods 1–3 slender, with long natatory setae. Outer ramus of pleopod 3 1-jointed. Outer margin of outer ramus of uropod distinctly serrate. Marsupial plates overlapping in middle line . . *Sphaeroma*, p. 503.

Maxilliped with 4th–6th joints lobed. Peraeopods 1–3 without long setae. Outer ramus of pleopod 3 2-jointed. Outer margin of outer ramus of uropod not or only indistinctly serrate. Marsupial plates not reaching middle line . . . . . . 3.

3 Peraeon segment 7 unarmed in both sexes . . 4.

Peraeon segment 7 with a process in ♂ (sometimes also in ♀) . . . . 5.

4 Outer ramus of uropod well developed, subequal to inner . . . . *Exosphaeroma*, p. 503.

Outer ramus of uropod much smaller than inner . *Pseudosphaeroma.*

5 Telsonic apex similar in both sexes, scarcely produced, with a ventral groove . . . . . . *Isocladus.*

Telsonic apex somewhat produced in ♀, strongly produced in ♂ with process narrowed at base, scarcely any ventral groove . . . . *Zuzara.*

6 Both rami of uropod well developed. Pleon segment 4 without median process. . . . . . *Cymodoce*, p. 504.

Inner ramus of uropod very short . . . . . 7.

7 Pleon segment 4 with median process in ♂ . . *Cilicaea.*

Pleon segment 4 without process . . . . *Paracilicaea.*

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* Mandibles lose their dark, strongly chitinised apices, other appendages bluntened and non-setose. See Hansen, Q.J. Microsc. Sci., n.s., No. 193, vol. 49, pt. 1, p. 82, 1905.

8	Outer ramus of 3rd pleopod 2-jointed. Telsonic slit widening to a foramen in ♂. ♂ appendages on 7th segment separate	9.
	Outer ramus of 3rd pleopod 1-jointed. Telsonic slit not widening to a foramen. ♂ appendages on 7th segment fused basally	*Dynoides.*
9	Peraeon segment 7 in ♂ with, in ♀ with or without, a median process	*Parisocladus,* p. 505.
	Peraeon segment 7 unarmed in both sexes . .	*Sphaeramene.*

Key to the species of *Sphaeroma.*

1	Telson triangular, apex pointed. Epistome flat . . .	*terebrans.*
	Telson spoon-shaped, apex broadly rounded. Epistome concave	2.
2	Tubercles on peraeon circular. On telson the 2 submedian series of tubercles diverge slightly and continue nearly to apex .	*walkeri.*
	Tubercles on peraeon transversely elongate. On telson 2 pairs of submedian tubercles, followed by a single median one .	*annandalei.*

Key to the species of *Exosphaeroma.*

1	Integument minutely setulose. Outer ramus of uropod fringed with setae, especially on inner margin	*hylecoetes.*
	Integument including uropods glabrous.	2.
2	Epistome somewhat like a shovel, its anterior margin freely projecting. Telsonic apex acute or narrowly pointed . .	3.
	Epistome without freely projecting anterior margin, its apex curving over to meet rostral point	5.
3	Telson smooth, evenly convex. Inner ramus of uropod narrowing to a pointed apex	*pallidum.*
	Telson with a pair of low (often indistinct) ridges proximally and a median keel distally. Inner ramus of uropod more or less truncate apically	4.
4	Inner ramus of uropod with outer distal corner rounded; outer ramus serrulate on outer margin distally.	*kraussii.*
	Inner ramus of uropod with outer distal corner sharply quadrate; outer ramus with apex uncinately curved outwards . .	*antikraussi.*
5	Body very depressed. Uropods very large, lamellate. Epistome with a concavity	*planum.*
	Body moderately depressed. Uropods moderate. Epistome not concave	6.
6	Telson considerably broader than long, in ♂ not extending to apices of uropods	*brevitelson.*
	Telson only slightly, if at all, broader than long; or longer than broad, extending at least to level of apices of uropods .	7.
7	Inner ramus of uropod quadrangular (parallel-sided). Telson longer than broad, narrowing to a very acute apex . .	*porrectum.*
	Inner ramus of uropod ovate-lanceolate	8.
8	Telson apically broadly rounded-truncate	*truncatitelson.*
	Telson apically narrowly rounded or subacute . . .	9.

9 Telson extending beyond apices of inner rami of uropods . . *varicolor.*
Telson not extending beyond apices of inner rami of uropods; in ♂ with 2 minute submedian granules and 10–12 other granules in an arc submarginally . . . . . *laeviusculum.*

Key to the species of *Cymodoce.*

(♂♂ only. It is often impossible to assign isolated ♀♀ or juveniles to their proper species.)

1 First peduncular joint of antenna 1 denticulate on front margin . . . . *tuberculata* var. *tripartita.*
First peduncular joint of antenna 1 not denticulate . . 2.

2 Median lobe of telsonic apex ♂ dorsally with either a recurved hook or a round button-like knob . . . 3.
Median lobe of telsonic apex without either hook or knob . 6.

3 Telsonic apex with a knob . . . . *umbonata.*
Telsonic apex with a hook . . . . 4.

4 Pleon segment 4 without tubercles . . . . *unguiculata.*
Pleon segment 4 with 2 submedian tubercles . . . 5.

5 Hook very long. Tubercles on pleon stronger than those on telson. Hind margin of pleon segment 4 laterally strongly setose . . . . *falcata.*
Hook short. Tubercles on telson stronger than those on pleon . . . . *uncinata.*

6 Head strongly inflated . . . . *amplifrons.*
Head not inflated . . . . 7.

7 Both rami of uropod tapering to acute points. Pleon segment 4 with submedian processes or tubercles . 8.
Rami of uropod not tapering to acute points; or if one of them is acute (lanceolate) then pleon segment 4 without tubercles . . . . 9.

8 Pleon segment 4 with 2 long submedian processes . . *acanthiger.*
Pleon segment 4 with 2 tubercles . . . . *africana.*

9 Body glabrous. Peraeon without tubercles. Often with blue or black spots . . . . *valida.*
Body more or less pilose or setulose . . . . 10.

10 Outer ramus of uropod not distinctly smaller than inner ramus . . . . 11.
Outer ramus of uropod much smaller than inner ramus . 12.

11 Anterior peraeon segments glabrous. Outer ramus of uropod subacute. Telsonic apex deeply trifid, median lobe subacute . . . . *comans.*
Whole body thickly setose. Outer ramus of uropod apically acute. Telsonic apex shallowly trifid, median lobe broad, truncate . . . . *japonica* var. *natalensis.*

12 Uropods not extending beyond telsonic apex . . . 13.
Uropods extending beyond telsonic apex . . . 14.

13	Pleon segment 4 without tubercles or bosses. Median and lateral lobes of telsonic apex acute, the lateral ones curved outwards	*cavicola.*
	Pleon segment with 2 submedian tubercles. Lobes of telsonic apex blunt	*setulosa.*
14	Telson with 2 submedian bosses followed by 2 conical tubercles	*tetrathele.*
	Telson with 2 submedian ridges or longitudinally elongated bosses	*cryptodoma.*
	Telson with 2 submedian conical tubercles	*excavans.*

Key to the species of *Parisocladus*.

Process on peraeon segment 7 in ♂ short, apically bifid; in ♀ very short. Telsonic slit in ♂ widening very little anteriorly	*stimpsoni.*
Process long, apically entire in ♂; ♀ without process. Telsonic slit in ♂ widening to a circular or transverse foramen	*perforatus.*

Key to the genera of *Eubranchiatae*.

1	Peraeon usually without processes. Telsonic apex with either a notch, or a narrow slit widening anteriorly, with or without a median lobe	2.
	Peraeon without processes. Telson with the lateral margins bent downwards and inwards to form a tube	*Cymodocella*, p. 506.
2	Uropods normal	*Dynamenella*, p. 505.
	Inner ramus of uropod in ♂ rudimentary, outer ramus very long	*Cassidias.*

Key to the species of *Dynamenella*.

1	Peraeon segment 7 in ♂ with 2 strong submedian processes. Telsonic slit widening anteriorly, with a median lobe	*dioxus.*
	Whole peraeon without processes	2.
2	Telsonic apex with a slit widening anteriorly into a foramen, without median lobe. One or more of the peraeon segments tuberculate	3.
	Telsonic apex with a notch not widening anteriorly, or apex truncate. Peraeon segments not tuberculate	6.
3	Mouth-parts elongate. Telsonic slit widening to a distinct transverse foramen. 2 submedian longitudinal ridges on middle of telson, with a shorter pair between them basally. Inner ramus of uropod oblong, apically rounded. Peraeon with tubercles on all segments (more or less distinct)	*scabricula.*
	Mouth-parts not elongate. Telsonic slit not widening to a foramen, with a tubercle just in front of the slit	4.
4	Inner ramus of uropod oblong, apically broadly rounded. Peraeon with tubercles on all segments	*bicolor.*
	Inner ramus of uropod sinuous, narrowly apically. Peraeon with tubercles only on segment 7, either distinct or very obscure	5.

5	Tubercles on peraeon segment 7 distinct. A prominent median tubercle immediately in front of apical notch	*australis.*
	Tubercles very obscure. No median tubercle immediately in front of apical notch	*australoides.*
6	Telsonic apex with a notch	7.
	Telsonic apex truncate. Body boat-shaped. Head strongly inflated	*navicula.*
7	Head strongly inflated. Telson with 2 ridges. Only base of 2nd joint of peraeopods dark	*taurus.*
	Head rather inflated. Telson with 2 low tubercles. Whole of 2nd joint of peraeopods dark	*macrocephala.*
	Head not inflated. Telson quite smooth. 2nd joints of peraeopods not dark	8.
8	Body convex, nearly parallel-sided	*huttoni.*
	Body depressed, oval	*ovalis.*

Key to the species of *Cymodocella.*

1	Peraeon without tubercles or ridges	2.
	Peraeon with tubercles and ridges giving a cancellate appearance. Telson with 2 large submedian processes	*cancellata.*
2	Telson and pleon segment 4 both with 2 obscure submedian tubercles	*sublevis.*
	Telson with 6 tubercles. Peraeon segment 7 posteriorly bilobed, at least in ♂	*pustulata.*

Key to the genera of *Platybranchiatae.*

1	Body vaulted. Basal joints of antenna 1 not expanded. Eyes lateral. Head not sunk in 1st peraeon segment. Uropods biramous	*Parasphaeroma.*
	Body depressed, more or less elliptical. Basal joints of antenna 1 expanded. Eyes dorsal. Head sunk in 1st peraeon segment	2.
2	Seventh peraeon segment excluded from the lateral margin. Outer ramus of uropod apparently obsolete	*Artopoles.*
	Seventh peraeon segment forming part of the lateral margin. Outer ramus of uropod well developed	*Stathmos.*

Key to the families of *Idoteoidea* (*Valvifera*).

1	Ramus of uropod small. Pleopod 1 often modified in ♂. A single penial process	2.
	Ramus of uropod large. Pleopod 1 never modified in ♂. Usually a pair of penial processes. Body depressed. Peraeopods more or less prehensile, the anterior 4 pairs often subchelate	*Idoteidae*, p. 507.
2	Body narrow, cylindrical, rarely depressed. Anterior 4 pairs of peraeopods directed forwards, not prehensile, slender, with long setae	*Astacillidae*, p. 508.
	Body broad, depressed. Anterior 4 pairs of peraeopods normal, prehensile, not setose	*Pseudidoteidae.*

Key to the genera of *Idoteidae.*

1	Eyes dorsal. Maxilliped 7-jointed. Pleon with 2 complete sutures and one incomplete	*Cleantis.*
	Eyes lateral	2.
2	Side-plates distinct. A pair of penial processes	3.
	Side-plates not distinct. A single penial process. Maxilliped 5-jointed	*Synidotea,* p. 507.
3	Maxilliped 6-jointed	4.
	Maxilliped 7-jointed	5.
4	Pleon with one incomplete and 2 complete sutures	*Idotea,* p. 507.
	Pleon with 3 incomplete sutures	*Euidotea.*
5	Pleon with one complete and 2 incomplete sutures	6.
	Pleon completely fused, with 3 incomplete sutures. Body with low medio-dorsal longitudinal keel	*Glyptidotea.*
6	Side-plates contiguous in both sexes	*Paridotea,* p. 507.
	Side-plates widely separated in ♂	*Engidotea.*

Key to the species of *Synidotea.*

1	Side-plates on segments 2 and 3 rounded. Telson with postero-lateral angles rounded. Peraeopods strongly setose. Uropod with 2 oblique ridges on peduncle	2.
	Side-plates on segments 2 and 3 angular. Telson with postero-lateral angles acute. Peraeopods not strongly setose. Uropod without ridges on peduncle	*setifer.*
2	Peraeopods strongly setose. Uropod with 2 oblique ridges on peduncle	*hirtipes.*
	Peraeopods not strongly setose. Uropod without oblique ridges on peduncle	*variegata.*

Key to the species of *Idotea.*

Telson apically truncate. Colour blue. Pelagic	*metallica.*
Telson apically emarginate. Colour variable	*indica.*

Key to the species of *Paridotea.*

1	Body very narrow and elongate. Ramus of uropod longer than broad	*fucicola.*
	Body not very narrow. Ramus of uropod not longer than broad	2.
2	Posterior margins of sterna straight or convex. Peduncle of uropod without longitudinal keel. Antenna 2 with 3rd–5th joints not produced. Lateral margin of telson thin, not grooved	3.
	Posterior margins of sterna concave. Peduncle of uropod with longitudinal keel. Antenna 2 with inner apex of 3rd–5th joints produced. Lateral margin of telson thick, grooved	*reticulata.*
3	Ramus of uropod distinctly broader than long. Postero-lateral angles of telson subacute	*rubra.*
	Ramus of uropod very little broader than long. Postero-lateral angles of telson acute	*ungulata.*

Key to the genera of *Astacillidae*.

1	Body cylindrical or only slightly depressed . . .	2.
	Body strongly depressed, not bent. Peraeon segment 4 not elongate. 3 pairs of marsupial plates. Side-plates distinct. All pleon segments and telson completely fused	*Idarcturus.*
2	Four pairs of marsupial plates. Peraeon segment 4 in ♂, and to a less extent in ♀, elongate. Body bent between segments 4 and 5. Side-plates distinct . .	3.
	Three pairs of marsupial plates	4.
3	Peraeon segments in ♂ without any ventral processes. Segment 4 in ♀ without lateral wing-like expansions. Pleopod 1 in ♂ modified	*Antarcturus*, p. 508.
	Peraeon segment 4 in ♀ laterally expanded. Pleopod 1 in ♂ not modified	*Arcturella*, p. 508.
4	Peraeon segment 4 in both sexes, but more in ♂ than in ♀, elongate. Body bent between segments 4 and 5 .	5.
	Peraeon segment 4 not elongate. Body not bent . .	6.
5	Peraeopod 1 stout, patent. Peraeopods 2–4 slender. Peraeon segment 4 often very elongate in ♂ . .	*Astacilla*, p. 509.
	Peraeopods 1–4 short and stout, peraeopod 1 latent, concealed in a buccal chamber formed by downward projections of lateral margins of head and peraeon segment 1. Peraeon segment 4 not so very long in ♂ .	*Arcturina.*
6	Side-plates distinct. Pleon with 3 segments in front of telson. Body not spinose	*Neoarcturus.*
	Side-plates not distinct. Pleon with one segment in front of telson. Body spinose	*Pleuroprion.*

Key to the species of *Antarcturus*.

Peraeopods 2–7 serrate or spinose. Body granulate in ♂, spinose in ♀. A pair of long spines on head, knobbed in ♂, spinulose in ♀	*kladophoros.*
Peraeopods smooth. Head and peraeon segments each with 2 submedian tubercles forming 2 longitudinal ridges down the body	*similis.*

Key to the species of *Arcturella*.

1	Width of peraeon segment 4 ♀ less than length, in ♂ very much less. Body in both sexes subcylindrical. Flagellum 2nd antenna 2–3-jointed . . .	2.
	Width of segment 4 ♀ greater than length, considerably less than length in ♂. Body in both sexes depressed. Flagellum 2nd antenna 1-jointed	3.

2 A small ventral process on 3rd segment ♂. Body ♀ normally hirsute and strongly tuberculate . . *corniger.*
No ventral process. Body ♀ glabrous and feebly tuberculate . . . . *lineata.*
3 Antero-lateral angles 1st segment ♀ not distinct. Lateral margin 4th segment ♀ straight or nearly so . . 4.
Antero-lateral angles 1st segment distinct, acute. Lateral margin 4th segment lobulate (only ♀ known) . . *lobulata.*
4 Segment 4 tuberculate (only ♀ known) . . . . *pustulata.*
Segment 4 not tuberculate . . . . . . 5.
5 Outer margin 2nd joint antenna 2 entire. Peraeopod 5 ♀ 2nd joint longer than all others together. 4th segment ♂ with median hooked tubercle near hind margin . . . . *longipes.*
Outer margin 2nd joint antenna 2 notched. Peraeopod 5 2nd joint shorter than all others together. Segment 4 ♂ with 2 tubercles in middle line. . . . *brevipes.*

Key to the species of *Astacilla.*

Smooth, glabrous, very slender in ♂. Segment 4 in ♀ a little less, in ♂ a little more than half the total length, smooth in both sexes. Amongst the spines on Echinoids . . . . *bacillus.*
♀ granulate. Head spinose. Segment 4 much less than half total length, with a large median tubercle in front, and a smaller one behind . . . . *mediterranea.*

Key to the families of *Aselloidea* (*Asellota*).

(Marine species. If the specimen is freshwater see *Protojanira* under *Jaeridae*).

1 First pair of pleopods in ♂ not coupled with the 2nd pair, their peduncles short and fused, rami distinct. 2nd pair small. 3rd pair in both sexes forming an operculum. 1st pair in ♀ small, fused, forming a small operculum * . . . . *Stenetriidae*, p. 510.
First pair of pleopods in ♂ coupled with the 2nd, forming a large operculum; peduncles of 1st pair elongate, the rami often obscure. 2nd pair large. 3rd pair not forming an operculum in either sex. 1st pair in ♀ large fused, opercular . . . . . 2.
2 Posterior 3 peraeopods not natatory. Eyes usually present . . . . 3.
Posterior 3 peraeopods either natatory or slender. Eyes absent . . . . 4.

* But see *Stenetrium syzygus.*

3	Peraeon segments 5–7 not marked off from the rest, nor smaller. Eyes (when present) dorsal or dorso-lateral, but not pedunculate. Bases of 1st antennae not widely separate	*Jaeridae*, p. 510.
	Peraeon segments 5–7 sharply marked off from, and smaller than, the rest. Eyes (when present) on lateral pedunculate processes. Bases of 1st antennae widely separate	*Munnidae*, p. 511.
4	Posterior 3 peraeopods slender, sometimes with long spines, but none of the joints enlarged	*Desmosomidae*, p. 512.
	Posterior 3 peraeopods with enlarged and flattened joints bearing long plumose setae	*Munnopsidae*, p. 512.

Key to the species of *Stenetrium*.

1	Eyes well developed and pigmented	2.
	Eyes reduced to 3–4 feebly pigmented ocelli	*syzygus.*
2	Outer apex of 1st joint of antenna 2 produced into an acute process	3.
	Outer apex of 1st joint of antenna acute but not produced or dentiform	6.
3	Finger of peraeopod 1 ♂ slender, tapering. Ventral keel present on all peraeon segments	4.
	Finger of peraeopod 1 ♂ robust, not tapering. Ventral keel absent on segments 4 and 5	*bartholomei.*
4	Rostrum longer than broad. 6th joint of peraeopod 1 in ♂ as broad as long, in ♀ scarcely widening distally; 2nd joint in ♂ without basal tooth	*crassimanus.*
	Rostrum broader than long. 6th joint of peraeopod 1 in ♀, widening distally	5.
5	Second joint of peraeopod 1 in ♂ with basal tooth, 6th joint longer than wide. Ventral keel on all segments	*diazi.*
	Second joint of peraeopod 1 in ♂ without basal tooth; 6th joint as broad as long. Ventral keel present only on segments 3, 4 and 7	*dalmeida.*
6	Rostrum quadrate, broader than long. 6th joint of peraeopod 1 in ♂ as broad as long	*dagama.*
	Rostrum triangular, longer than basal width. 6th joint of peraeopod 1 in ♂ longer than broad	*saldanha.*

Key to the genera of *Jaeridae*.

1	Freshwater. First pleopods in ♂ abnormal for the family, consisting of 2 foliaceous rami arising from a short basal piece, and overlapping the 2nd pleopods (not coupled with them to form an operculum)	*Protojanira.*
	Marine. First pleopods normal	2.

2	Antenna 2 long, peduncular joints not dilated, flagellum multiarticular. Mandible with prominent molar. Uropods with rami	3.
	Antenna 2 short, peduncle dilated, flagellum rudimentary. Mandible with molar obsolete. Uropods minute, nodular, rami obsolete	*Jaeropsis.*
3	Eyes distinct	4.
	Eyes absent	*Haploniscus.*
4	Antenna 1 very small, flagellum 2–3-jointed. Uropods short	5.
	Antenna 1 well developed. Uropods well developed .	7.
5	No rostral process. Peraeopod 1 not subchelate . .	6.
	A rostral process. Peraeopod 1 subchelate . . .	*Pseudojanira.*
6	Third joint of antenna 2 without scale (spine) . .	*Jaera.*
	Third joint of antenna 2 with a scale	*Austrofilius.*
7	Maxilliped with 4th and 5th joints very much enlarged. Peduncles and rami of pleopod 1 in ♂ fused and dilated	*Ianiropsis.*
	Maxilliped with none of the joints much enlarged. Peduncles and rami of pleopod 1 in ♂ usually not fused or dilated	8.
8	Apex of mandible in ♂ not prolonged. Eyes with several ocelli. Peraeopod 1 usually more or less modified for prehensile purposes	*Janira*, p. 511.
	Apex of mandible in ♂ much prolonged. Each eye consisting of only 2 lenses. All peraeopods alike . .	*Iais.*

Key to the species of *Janira*.

1	Third joint of antenna 2 with scale. Maxilliped with 3rd–5th joints broad. Anterior margin of head not strongly produced	2.
	Third joint of antenna 2 without scale. Maxilliped with all joints narrow. Anterior margin of head strongly produced. 3rd joint of peraeopod 1 in ♂ with transverse rugae	*exstans.*
2	Body not very narrow. 5th joint of peraeopod 1 in ♂ narrow, more than twice as long as broad . .	*capensis.*
	Body very narrow. 5th joint of peraeopod 1 in ♂ oval, not twice as long as broad	*angusta.*

Key to the genera of *Munnidae*.

1	Uropods minute. Mandible with small palp . . .	*Paramunna*, p. 512.
	Uropods well developed	2.
2	Mandible with palp. Head not produced in a rostrum in ♂. 1st peraeon segment in ♂ not gibbous . .	*Antias.*
	Mandible without palp. Head in ♂ rostrate. 1st peraeon segment in ♂ gibbous	*Kuphomunna.*

Key to the species of *Paramunna*.

1	Lateral margin of pleon serrulate	*capensis.*
	Lateral margin of pleon entire	2.
2	Front of head evenly convex	*laevifrons.*
	Front of head quadrately produced	*concavifrons.*

Key to the genera of *Desmosomidae*.

1	Pleon consisting of one segment. Body moderately elongate. Peraeon segment 1 not laterally produced	2.
	Pleon consisting of 2 segments. Body very elongate. Peraeon segment 1 laterally produced forwards, segments 4 and 5 very long	*Rhabdomesus.*
2	Uropod biramous. Mandible with palp	*Eugerda.*
	Uropod uniramous	3.
3	Mandible with a feeble palp. Uropod short	*Ilychthonos.*
	Mandible without palp. Uropod long	*Macrostylis.*

Key to the genera of *Munnopsidae*.

1	Antenna 2 with scale on 3rd joint	*Munnopsurus.*
	Antenna 2 without scale on 3rd joint	2.
2	Head produced between bases of 1st antennae, which are widely separated	3.
	Head truncate in front, bases of 1st antennae close together	*Ilyarachna*, p. 512.
3	Posterior part of body abruptly narrower than the anterior part. Uropod uniramous	*Pseudomunnopsis.*
	Posterior part of body not narrower than anterior part. Uropod biramous	*Eurycope*, p. 512.

Key to the species of *Ilyarachna*.

Posterior margin of peraeon segment 6 nearly straight, segment 6 medio-dorsally longer than 7	*affinis.*
Posterior margin of peraeon segment 6 concave, segment 7 medio-dorsally longer than 6	*crassiceps.*

Key to the species of *Eurycope*.

1	Head produced between bases of 1st antennae	2.
	Head concave in front, not produced	*fusiformis.*
2	Head very shortly produced. Antero-lateral angles of peraeon segments 5–7 and of pleon acute; segment 7 longer than either 5 or 6	*quadrata.*
	Head strongly produced. Antero-lateral angles of peraeon segments 5–7 and of pleon rounded; segment 6 longer than either 5 or 7	*sulcifrons.*

Key to the families of *Bopyroidea* (*Epicaridea*).

1	♀ with true peraeopods and some or all of the other appendages. ♂ differing from the last larval stage of ♀	2.
	♀ a simple sac, without peraeopods and with most or all of the other appendages absent. ♂ resembling the last larval stage of the ♀. Oral cone without disc. Basal joint of antenna 1 expanded, usually with spiniform teeth. Side-plates (coxal-plates) pectinate (except *Liriopsis*). Peraeopods 1 and 2 shorter and thicker than the others, the former prehensile, the latter slender, with setiform dactyli. Outer ramus of uropod shorter than inner. Parasitic on various other Crustacea	*Cryptoniscidae*, p. 514.
2	♀ distinctly segmented, more or less asymmetrical. 7 pairs of peraeopods, all except 1st sometimes obsolete on one side. Pleopods usually present. ♂ with 7 distinct peraeon segments. Last larval stage with oral cone simple, basal joint of antenna 1 entire, flagellum of antenna 2 4-jointed, peraeopods all alike, and inner ramus of uropod shorter than outer. Parasitic on Decapod Crustacea	*Bopyridae*, p. 513
	♀ symmetrical, segmentation (if present) visible only on the dorsal side. 5 pairs of peraeopods. Pleopods rudimentary or absent. ♂ with 6 free peraeon segments (the 1st segment fused with head). Last larval stage with oral cone ending in a sucking disc, basal joint of antenna 1 with spiniform process, flagellum of antenna 2 5-jointed, peraeopod 1 shorter and thicker than the others, and rami of uropod subequal. Parasitic on Decapods and Schizopods	*Dajidae*.

Key to the genera of *Bopyridae*.

1	♀ asymmetrical, but not greatly swollen on one side. 7 peraeopods on both sides. Uropods present	2.
	♀ greatly swollen on one side. Only 1st peraeopod present on the swollen side. Uropods absent. 5 pleon segments. ♂ with pleon segments completely fused	*Hemiarthrus*.
2	Uropods of ♀ uniramous	3.
	Uropods of ♀ biramous	5.
3	Pleurae and outer rami of pleopods of ♀ elongate, digitate. ♂ with medio-ventral boss on all peraeon segments; and pleon segments partly distinct	*Scyracepon*.
	Pleurae and pleopods of ♀ not elongate or digitate. ♂ without medio-ventral bosses, and with all pleon segments distinct	4.
4	Pleopods of ♀ tuberculate or warty	*Pseudione*, p. 514.
	Pleopods of ♀ smooth	*Palaegyge*.

5 Epimera of ♀ not enlarged. Pleon segments in ♂ distinct . *Paragigantione.*
Epimera of ♀ considerably or greatly enlarged, and separate. Pleon segments in ♂ fused . . . . 6.

6 Lateral parts of pleon segments in ♀ not developed . . *Bathygyge.*
Lateral parts of pleon segments in ♀ well developed, but only 5 segments visible . . . . . . *Epipenaeon.*

Key to the species of *Pseudione.*

Epimera of ♀ rounded, pleura acute . . . . . *crenulata.*
Epimera of ♀ acute, pleura rounded . . . . . *munidae.*

Key to the genera of *Cryptoniscidae.*

1 Body of ♀ consisting of 2 sacs connected by a narrow neck, without attachment cord. ♂ with eyes, and epimera and basal joint of antenna 1 entire. Parasitic on rhizocephalous Cirripedes on Hermit-crabs . . . . *Liriopsis.*
Body of ♀ consisting of a single sac. ♂ without eyes, and epimera and basal joint of antenna 1 pectinate . . 2.

2 ♀ attached to host by a cord. Ventral surface without slit. First larval stage without a ventral plate. Parasitic on Ostracods . . . . *Cyproniscus.*
♀ not attached. Ventral surface with a slit closed by valve-like flaps. First larval stage with a ventral plate. Parasitic on Isopods. . . . . 3.

3 Body slightly lobulate laterally, without distinct segmentation *Clypeoniscus.*
Body distinctly lobulate, the segmentation extending nearly from mid-dorsal line to mid-ventral line. ♂ and larval stages unknown . . . . *Aegoniscus.*

List of South African Amphipoda.

Gammaridea.

Lysianassidae.
- *Trischizostoma remipes* Stebb.
- ,, *paucispinosum* Brnrd.
- ,, *serratum* Brnrd.
- *Stomacontion capense* Brnrd.
- *Acidostoma obesum* (Bate).
- *Phoxostoma algoense* Brnrd.
- *Paravalettia chelata* Brnrd.
- *Euonyx biscayensis* Chevr.
- *Amaryllis macrophthalma* Hasw.
- *Bathyamaryllis conocephala* (Brnrd.).
- *Cyphocaris richardi* Chevr.
- ,, *anonyx* Boeck.
- ,, *challengeri* Stebb.
- ,, *faurei* Brnrd.
- *Lysianassa variegata* (Stimps.).
- ,, *ceratina* (Wlkr.) (syn. *cubensis*, non Stebb.).

Aristias symbiotica Brnrd.
Hippomedon longimanus (Stebb.).
Microlysias xenoceras Stebb.
Ichnopus taurus Costa. (syn. *macrobetomma* Stebb.).
Socarnopsis crenulata Chevr.
Orchomenella plicata Schell.
Uristes natalensis Brnrd.
,, *induratus* Brnrd.
Cheirimedon pectenipalma Brnrd.
Tryphosa onconotus Stebb.
Chironesimus adversicola (Brnrd.).
,, *rotundatus* (Brnrd.).
Eurythenes gryllus (Licht.).

Stegocephalidae.

Stegocephaloides australis Brnrd.
,, *attingens* Brnrd.
Parandania boecki (Stebb.).

Ampeliscidae.

Ampelisca brevicornis (Costa).
,, *anomala* Sars.
,, *chiltoni* Stebb. (?=*eschrichtii* Kröyer).
,, *fusca* Stebb.
,, *diadema* (Costa).
,, *miops* Brnrd.
,, *natalensis* Brnrd.
,, *palmata* Brnrd.
,, *excavata* Brnrd.
,, *spinimanus* Chevr.
,, *byblisoides* Brnrd.
Byblis anisuropus Stebb.
,, *gaimardi* (Kröyer).
Triodos insignis Brnrd.

Haustoriidae.

Urothoë pulchella (Costa).
Platyischnopus capensis Brnrd.

Phoxocephalidae.

Harpinia excavata Chevr.
Pontharpinia stimpsoni Stebb. (? syn. *villosa juv.* Schell.).

Amphilochidae.

Gitanopsis pusilla Brnrd.
Hoplopleon australis (Brnrd.).
,, *medusarum* Brnrd.
Cyproidea ornata (Hasw.) (syn. *Gallea crinita* Spandl.)

Leucothoidae.

Leucothoë spinicarpa (Abildg.).
,, *richiardii* Less.
,, *dolichoceras* Brnrd.
,, *ctenochir* Brnrd.

Metopidae.

Proboloides rotundus (Stebb.).

Stenothoidae.

Stenothoë adhaerens Stebb. (only ♀ known).
,, *gallensis* Wlkr.
,, *dolichopous* Brnrd.
,, *assimilis* Chevr.

Phliantidae.

Plioplateia triqueter Brnrd.
Temnophlias capensis Brnrd.
Palinnotus natalensis Brnrd.

Colomastigidae.

Colomastix pusilla Grube.

Ochlesidae.

Ochlesis lenticulosus Brnrd.

Pardaliscidae.

Nicippe tumida Bruz.
Halice anacantha Brnrd.

Acanthonotozomatidae.

Iphimedia capicola Brnrd.
Panoploea excisa Brnrd.

Liljeborgiidae.

Liljeborgia dubia (Hasw.).
,, *consanguinea* Stebb.
,, *proxima* Chevr.
,, *kinahani* Bate var. *capensis* Brnrd.
,, *epistomata* Brnrd.

Oedicerotidae.

Halicreion (?) *ovalitelson* Brnrd.
Bathymedon palpalis Brnrd.
Oediceroides cinderella Stebb.
,, *plumicornis* Brnrd.
Aceroides limicola Brnrd.
Perioculodes longimanus (B. and W.).
Synchelidium (? *tenuimanus* Norm.).

Tironidae.
Tiron australis Stebb.
Bruzelia diodon Brnrd.
Syrrhoites tenellus Brnrd.
Austrosyrrhoë crassipes Brnrd.

Calliopiidae.
Calliopiella michaelseni Schell.

Paramphithoidae.
Epimeria cornigera (Fabr.).
,, *semiarmata* Brnrd.
,, *longispinosa* Brnrd.

Lepechinellidae.
Lepechinella chrysotheras Stebb.

Atylidae.
Nototropis homochir (Hasw.).
,, *granulosus* (Wlkr.).

Eusiridae.
Eusiroides monoculodes (Hasw.).
Eusirus minutus Sars.
Cleonardopsis carinata Brnrd.
Rhachotropis palporum Stebb.
,, *kergueleni* Stebb.
,, *grimaldii* Chevr.
,, *paeneglaber* Brnrd.
,, *anomala* Brnrd.

Pontogeneiidae.
Paramoera capensis (Dana) (? syn. *schizurus* Stebb.).
,, *bidentata* Brnrd.

Gammaridae.
Megaluropus agilis Hoek (syn. *Phylluropus capensis* Brnrd.).
Melita fresnelii (Aud.).
,, *subchelata* Schell.
,, *zeylanica* Stebb.
,, *orgasmos* Brnrd.
Maera inaequipes (Costa).
,, *mastersii* (Hasw.).
,, *hamigera* (Hasw.).
,, *hirondellei* Chevr.
,, *grossimanus* (Mont.).
,, *bruzelii* Stebb. 1888.
,, *vagans* Brnrd. (syn. *bruzelii* Stebb. 1910, non Stebb. 1888.
levis Brnrd., non S. I. Smith).
,, *subcarinata* (Hasw.).
,, *boeckii* (Hasw.).

Ceradocus rubromaculatus (Stmpsn.).
,, *aviceps* Brnrd.
Elasmopus pectenicrus (Bate) (syn. *brasiliensis* Stebb. non Dana).
,, *japonicus* Steph.
Parelasmopus suluensis (Dana).
Elasmopoides chevreuxi Stebb.
Eriopisella capensis (Brnrd.).
Eucrangonyx robertsi Meth.*
Gammarus (*Paramelita*) *capensis* Brnrd. (syn. *P. ctenodactyla* Schell.).
,, ,, *nigroculus* Brnrd. and var. *persetosus* Brnrd.
,, ,, *crassicornis* Brnrd.
,, ,, *auricularius* Brnrd.
,, ,, *tulbaghensis* Brnrd.
,, ,, *seticornis* Brnrd.
,, ,, *kogelensis* Brnrd.
,, ,, *aurantius* Brnrd.
,, ,, *spinicornis* Brnrd.
,, ,, *granulicornis* Brnrd.

Dexaminidae.
Polycheria atolli Wlkr.
Guernea laevis Chevr.

Talitridae.
Talitroides eastwoodae (Meth.) (? = *T. africana* Bate).
,, ,, formae *cylindripes, setosa, calva, macronyx.*
Talorchestia capensis (Dana).
,, *quadrispinosa* Brnrd.
,, *australis* Brnrd.
,, *ancheidos* Brnrd.
,, (?) *africanus* Bate (species *dubia*).
Neobule reynaudi (M. Edw.) (species *dubia*).
Parhyale inyacka (Brnrd.).
Chiltonia capensis Brnrd.
Parorchestia rectipalma Brnrd.
,, *dassenensis* Brnrd.
Hyale saldanha Chilton.
,, *hirtipalma* (Dana).
,, *macrodactylus* Stebb.
,, *grandicornis* Kröyer.
,, *maroubrae* Stebb.
,, *diastoma* Brnrd.
Allorchestes inquirendus Brnrd.
Parhyalella natalensis (Stebb.).
Orchestia excavata Chevr. (Upper Zambezi.)
[,, *platensis* Kröyer. Tristan d'Acunha.]

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* Retained in *Crangonyx* by Schellenberg, Zool. Jahrb. Abt. Syst., lxix, p. 482, 1937.

Aoridae.

- *Aora typica* Kröyer.
  - ,, ,, forma *anomala* Schell.
  - ,, ,, ,, *gibbula* Brnrd.
- *Lembos hirsutipes* Stebb.
  - ,, *leptocheirus* Wlkr.
  - ,, *hypacanthus* Brnrd.
- *Lemboides afer* Stebb.
  - ,, *acanthiger* Brnrd.
  - ,, *crenatipalma* Brnrd.
- *Grandidierella lignorum* Brnrd.

Photidae.

- *Photus dolichommata* Stebb.
  - ,, *longimanus* Wlkr.
  - ,, *uncinata* Brnrd.
- *Cheiriphotis megacheles* (Giles) (syn. *walkeri* Stebb., *durbanensis* Brnrd.)
- *Eurystheus afer* (Stebb.).
  - ,, *atlanticus* (Stebb.).
  - ,, *holmesi* Stebb.
  - ,, *imminens* Brnrd.
  - ,, *semidentatus* Brnrd.
  - ,, *palmoides* Brnrd.
  - ,, (?) *scissimanus* Brnrd.
- *Chevalia aviculae* Wlkr.

Ampithoidae.

- *Ampithoë ramondi* (Aud.).
  - ,, *falsa* Brnrd.
  - ,, *africana* Brnrd.
- *Exampithoë natalensis* Brnrd.
- *Cymadusa australis* (Brnrd.).
- *Macropisthopous stebbingi* Brnrd.

Jassidae.

- *Jassa falcata* (Mont.).
- *Ischyrocerus anguipes* Kröyer.
  - ,, *carinatus* Brnrd.
  - ,, *gorgoniae* Brnrd.
- *Isaeopis tenax* Brnrd.

Corophiidae.

- *Camacho bathyplous* Stebb.
- *Ericthonius brasiliensis* (Dana).
- *Siphonoecetes orientalis* Wlkr.
  - ,, *dellavallei* Stebb.
- *Corophium acherusicum* Costa.
  - ,, *triaenonyx* Stebb.
- *Cerapus abditus* Templ.

Cheluridae.

Chelura terebrans Phil.

Sebidae.

Seba saundersii Stebb. (Doubtfully S. African.)

Podoceridae.

Laetmatophilus purus Stebb.
,, *tridens* Brnrd.
,, *durbanensis* Brnrd.
Podocerus cristatus (Thomson).
,, *africanus* Brnrd.
,, *multispinis* Brnrd.
,, ,, ,, var. *levis* Brnrd.
,, *brasiliensis* (Dana).
,, *inconspicuus* (Stebb.) (syn. *palinuri* Brnrd.).

Phronimidea (*Hyperiidea*).

Lanceolidae.

Scypholanceola vanhoeffeni Wolt.

Vibiliidae.

Vibilia armata Bov. (syn. *gracilenta* Bov.).
,, *chuni* Behn. and Wolt.

Cystisomatidae.

Cystisoma africanum Brnrd.

Hyperiidae.

Hyperia galba Mont. (syn. *gaudichaudii*).
,, *promontorii* Stebb. (syn. *schizogeneios*).
Hyperoche cryptodactylus Stebb.
Parathemisto (*Euthemisto*) *gaudichaudii* (Guer.).

Phronimidae.

Phronima sedentaria (Forsk.).
,, *atlantica* Guer.
,, *colletti* Bov.
Phronimella elongata Claus.

Phrosinidae.

Phrosina semilunata Risso.
Primno macropa Guer.

Pronoidae.

Parapronoë crustulum Claus (syn. *Parapronoë clausi* Stebb. and *Amphipronoë cuspidata* Bate).

Brachyscelidae.

Brachyscelus rapax Claus.

Oxycephalidae.
Oxycephalus tuberculatus Bate.
,, *clausi* Bov.
,, *latirostris* Claus.
Glossocephalus milne-edwardsi Bov.
Streetsia pronoides (Bov.).
Rhabdosoma whitei Bate.
Calamorhynchus rigidus Stebb.

Platyscelidae.
Hemityphis tenuimanus Claus.
Paratyphis maculatus Claus.
,, *promontorii* Stebb.
Tetrathyrus forcipatus Claus.

Cyamidea.

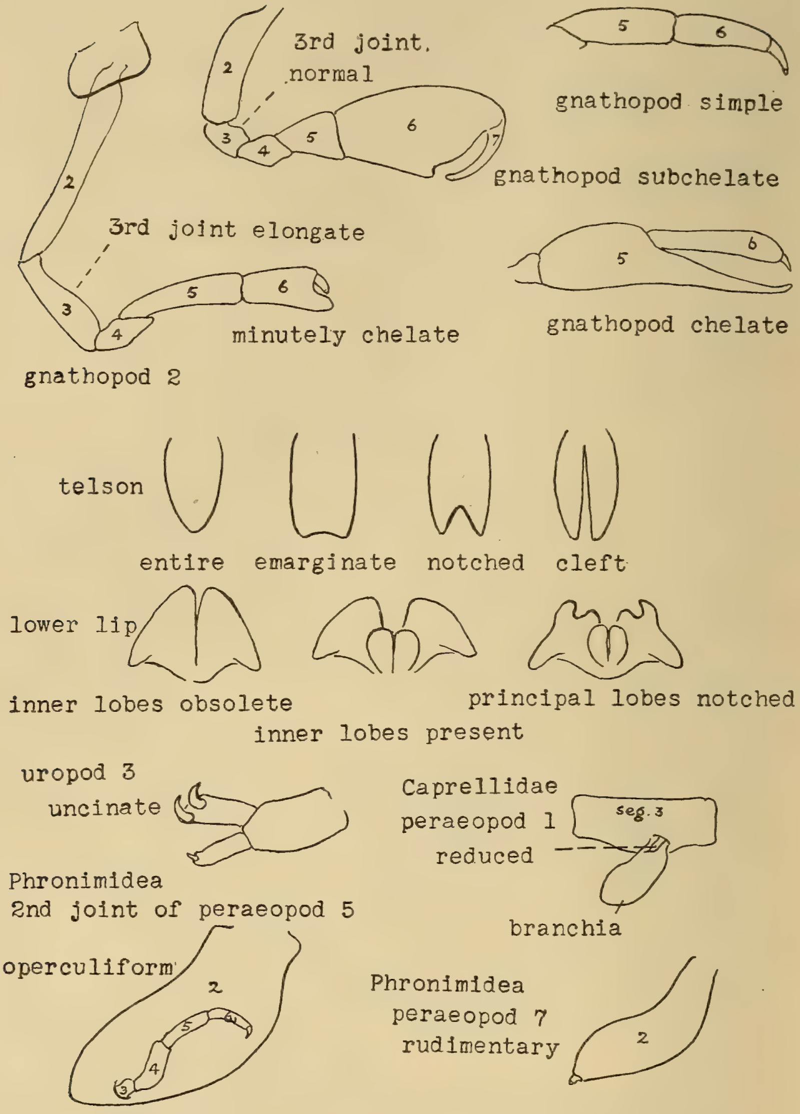
Caprellidae.
Caprella penantis Leach (syn. *acutifrons* Latr.).
,, ,, ,, var. *porcellio* Mayer.
,, ,, ,, var. *natalensis* Mayer.
,, *equilibra* Say.
,, *scaura* Templ.
,, *solitaria* Stimpson (species dubia, ? = *scaura*).
,, *cicur* Mayer.
,, *falsa* Mayer.
,, *laevipes* Mayer.
,, *triodous* Stebb.
,, *danilevskii* Czern.
Caprellina longicollis (Nicol.).
,, *spiniger* Brnrd.
Phtisica marina Slabber.
Metaprotella makrodaktylos Stebb.
Metaproto novaehollandiae (Hasw.).
Paradeutella serrata Mayer.
Orthoprotella mayeri Brnrd.
Pseudaeginella tristanensis (Stebb.).

Cyamidae.
Cyamus ovalis R. de V.
Paracyamus erraticus R. de V.
,, *gracilis* R. de V.
,, *boöpis* Lütken.

Synopsis of the three sub-orders of *Amphipoda*.

(After Stebbing. Das Tierreich, xxi, 1906.)

1. Normal Amphipoda, usually not pelagic, usually opaque and more or less pigmented. Head not fused with 1st peraeon segment. Palp of maxilliped 2–4-jointed (absent only in *Ochlesis*). Peraeon with 7 pairs of legs,



Amphipoda. Figures (schematic) to illustrate some of the differential characters utilized in the Keys.

the 1st joints of which form well developed side-plates. Pleon usually consisting of 7 free segments, carrying 3 pairs of pleopods and usually 3 pairs, at least 1 pair, of uropods; uropod 1 always biramous . *Gammaridea*, p. 523.

2. Pelagic Amphipoda, usually semitransparent or feebly pigmented. Head not fused with 1st peraeon segment. Palp of maxilliped absent. Peraeon with 7 pairs of legs, the 1st joints (side-plates) small or wanting. Pleon usually consisting of 7 free segments, carrying 3 pairs of pleopods and 3 pairs of uropods; rami of the latter often evanescent. Eyes usually large . . . . *Phronimidea* (*Hyperiidea*), p. 526.

3. Slender, elongate, cylindrical Amphipoda, modified for living among weeds (Skeleton-shrimps); or short and depressed and ectoparasitic on whales (Whale lice). Head fused with 1st peraeon segment. Palp of maxilliped 1–4-jointed. Peraeon often with less than 7 pairs of legs, the 1st joints (side-plates) absent. Pleon and its appendages rudimentary. Eyes small *Cyamidea* (*Caprellidea*), p. 527.

A fourth sub-order, *Ingolfiellidea*, is accepted (see Hansen, 1903, J. Linn. Soc. London, xxix, and Calman, 1909, in Lankester's Treatise on Zoology, pt. 7); but no representatives of it have yet been found in South Africa.

Key to the families of *Gammaridea*.

(Adapted from Stebbing. Das Teirreich, xxi, 1906. Gnathopods 1 and 2, and peraeopods 1–5 are reckoned.)

1	Ant. 1 1st joint stout,* accessory flagellum present; mandible with cutting-edge almost smooth,† with palp; gn. 2 with 3rd joint elongate . . . . . . (* Except *Amaryllis*. † Except *Paravalettia*.)	*Lysianassidae*, p. 527.
	These characters not combined	2.
2 (1)	Body plump; ant. 1 with accessory flagellum; mandible without molar and without palp	*Stegocephalidae*, p. 529.
	These characters not combined	3.
3 (2)	Head tapering, truncate; eyes, when present, simple, usually 4; ant. 1 without accessory flagellum; telson more or less cleft . .	*Ampeliscidae*, p. 529.
	These characters not combined	4.

4 (3)	Ant. 1 with accessory flagellum; mandible with palp normal; prps. 3–5 with joints expanded for burrowing	5.
	These characters not combined	6.
5 (4)	Prp. 4 not greatly longer than prp. 5	*Haustoriidae*, p. 530.
	Prp. 4 greatly longer than prp. 5	*Phoxocephalidae*, p. 530.
6 (4)	Upper lip incised; mxp. normal; urop. 3 biramous; telson elongate and entire	*Amphilochidae*, p. 530.
	These characters not combined	7.
7 (6)	Ant. 1 without accessory flagellum; mxp. more or less abnormal; telson entire	8.
	These characters not combined	13.
8 (7)	Gnathopod 1 chelate	*Leucothoidae*, p. 531.
	Gnathopod 1 not chelate	9.
9 (8)	Uropod 3 biramous	10.
	Uropod 3 uniramous	11.
10 (9)	Mxp. with palp	*Colomastigidae*.
	Mxp. without palp	*Ochlesidae*.
11 (9)	Mandible with palp	*Metopidae*.
	Mandible without palp	12.
12 (11)	Mxp. outer plate obsolete	*Stenothoidae*, p. 531.
	Mxp. with both plates developed	*Phliantidae*, p. 531.
13 (7)	Mandible with molar weak or wanting; telson more or less divided	14.
	These characters not combined	16.
14 (13)	Mxp. inner plate well developed	*Acanthonotozomatidae*, p. 531.
	Mxp. inner plate small	15.
15 (14)	Gnathopods 1 and 2 simple	*Pardaliscidae*, p. 531.
	Gnathopods 1 and 2 strongly subchelate	*Liljeborgiidae*, p. 531.
16 (13)	Eyes, when present, dorsally contiguous or confluent	17.
	Eyes, when present, lateral	19.
17 (16)	Ant. 1 without accessory flagellum; 3rd joint mandibular palp large; prp. 5 much longer than prp. 4; telson entire	*Oedicerotidae*, p. 532.
	Ant. 1 with accessory flagellum; 3rd joint mandibular palp small; prp. 5 not much longer than prp. 4; telson cleft (except in *Bruzelia* of the *Tironidae*)	18.
18 (17)	Prps. 1 and 2, 4th and 5th joints dilated (pelagic)	[*Synopiidae*].
	Prps. 1 and 2, 4th and 5th joints not dilated	*Tironidae*, p. 532.
19 (16)	Side-plate 4 usually excavate behind; prp. 1 and 2 not glandular; telson variable; animal usually not domicolous	20.
	Side-plate 4 usually not excavate behind; prp. 1 and 2 glandular; telson entire; animal usually domicolous	29.

20 (19)	Mandible with palp	21.
	Mandible without palp	28.
21 (20)	Telson variable, usually cleft; ant. 1 usually with accessory flagellum	*Gammaridae*, p. 533.
	Telson entire	22.
	Telson cleft	24.
22 (21)	Rostrum weak	*Calliopiidae.*
	Rostrum well marked	23.
23 (22)	Side-plates 1–4 rounded; ant. 1 longer than ant. 2	[*Pleustidae*].
	Side-plates 1–4 angular; ant. 1 shorter than ant. 2	*Paramphithoidae*, p. 532.
24 (21)	Pleon segments 5 and 6 coalesced	25.
	Pleon segments 5 and 6 not coalesced	27.
25 (24)	Lower lip with inner lobes obsolete	*Atylidae*, p. 533.
	Lower lip with well developed inner lobes	26.
26 (25)	Urop. 3 not greatly elongate	*Lepechinellidae.*
	Urop. 3 greatly elongate	[*Melphidippidae*].
27 (24)	Gnathopods 1 and 2, hands powerful	*Eusiridae*, p. 533.
	Gnathopods 1 and 2, hands not powerful	*Pontogeneiidae*, p. 533.
28 (20)	Urop. 3, both rami well developed	*Dexaminidae*, p. 535.
	Urop. 3, one ramus very small or wanting	*Talitridae*, p. 535.
29 (19)	Uropods 2 and 3 well developed	30.
	Uropods 2 and 3, one or other wanting or rudimentary	*Podoceridae*, p. 539.
30 (29)	Pleon compressed; urop. 3 biramous (except *Grandidierella*)	31.
	Pleon usually depressed; urop. 3 uniramous (except *Chelura*)	34.
31 (30)	Uropod 3 not uncinate	32.
	Uropod 3 outer ramous uncinate	33.
32 (31)	Gnathopod 1 larger than gnathopod 2	*Aoridae*, p. 537.
	Gnathopod 1 not larger than gnathopod 2	*Photidae*, p. 537.
33 (31)	Lower lip with principal lobes notched	*Ampithoidae*, p. 538.
	Lower lip with principal lobes not notched	*Jassidae*, p. 539.
34 (30)	Ant. 2 with flagellum not spatulate; urop. 3 uniramous, terete (or inner ramus very minute)	35.
	Ant. 2 with spatulate flagellum; urop. 3 inner ramus minute, outer ramus foliaceous (wood-boring)	*Cheluridae.*
35 (34)	Both gnathopods chelate; gn. 2 with 3rd joint rather long	[*Sebidae*].
	Gnathopods not chelate (gn. 2 sometimes complexly subchelate, 5th joint prolonged); gn. 2 with 3rd joint short	*Corophiidae*, p. 539.

Key to the families of *Phronimidea* (*Hyperiidea*).

(Adapted from Bovallius, K. Sv. Vet. Ak. Handl., xxi, No. 5, 1887.)

(Peraeopods 1–7 are here reckoned.)

1	Ant. 1 straight, 1st joint of flagellum large, the rest inserted terminally; ant. 2 straight in both sexes	2.
	Ant. 1 curved, 1st joint of flagellum large, the rest inserted subterminally; ant. 2 in ♂ angularly folded (in *Lycaeopsidae* rudimentary in ♂, absent in ♀) . . .	10.
2 (1)	Ant. 1 flagellum few jointed	3.
	Ant. 1 flagellum in ♂ many jointed, filiform, in ♀ very small, rudimentary or absent .	7.
3 (2)	Head not swollen	4.
	Head large, swollen; mandible without palp .	6.
4 (3)	Ant. 1 flagellum elongate, styliform; mandible without palp; inner rami of urops. fused with peduncles, outer rami rudimentary in urops. 1 and 2, small in urop. 3 . .	[*Scinidae*].
	Ant. 1 flagellum short, terete or laminar; mandible with palp; all rami of urops. well developed, the inner rami not fused with peduncles	5.
5 (4)	Ant. 1 terete; last prp. normal, dactylus acute, unguiform	*Lanceolidae*, p. 540.
	Ant. 1 flagellum laminar, oval or lanceolate (terete in the Antarctic *Cyllopus*); last prp. more or less reduced in length, dactylus blunt, digitiform	*Vibiliidae*, p. 540.
6 (3)	Ant. 1 flagellum elongate, styliform (large forms reaching 70–80 mm.)	*Cystisomatidae*.
	Ant. 1 flagellum oval or lanceolate (small forms, up to 15 mm.)	[*Paraphronimidae*].
7 (2)	Urops. normal, with rami; last prp. normal .	8.
	Urops. foliaceous, without rami; last prp. reduced	*Phrosinidae*, p. 541.
8 (7)	Mandible without palp	9.
	Mandible with palp	*Hyperiidae*, p. 540.
9 (8)	All peraeopods simple	[*Dairellidae*].
	Prp. 5 with enlarged prehensile hand . .	*Phronimidae*, p. 540.
10 (1)	Prp. 6, 2nd joint not operculiform, the following joints articulated terminally	11.
	Prp. 6, 2nd joint operculiform, the following joints articulated subterminally . .	14.
11 (10)	Ant. 1 attached to anterior surface of head; prp. 5 very slender; prp. 6 robust . . .	[*Lycaeopsidae*].
	Ant. 1 attached to inferior surface of head .	12.

12 (11)	Head not (or very slightly) produced in a rostral point	13
	Head more or less produced in a rostral point	*Oxycephalidae*, p. 541.
13 (12)	Prps. 1 and 2 simple	[*Lycaeidae*].
	Prps. 1 and 2 prehensile, the expanded 5th joint forming a chela with the dactylus . .	*Brachyscelidae.*
14 (10)	Prp. 5, 2nd joint normal	*Pronoidae.*
	Prp. 5, 2nd joint operculiform . . .	15.
15 (14)	Prp. 7 normal	[*Thyropidae* (=*Parascelidae*)].
	Prp. 7 rudimentary	*Platyscelidae*, p. 541.

Key to the families of *Cyamidea*.

Body elongate, cylindrical; both pairs of antennae well developed (free-living, among weed, coral, etc.)	*Caprellidae*, p. 542.
Body short, depressed; 2nd antennae rudimentary (ecto-parasitic on whales) . .	*Cyamidae*, p. 543.

Key to the genera of *Lysianassidae*.

1	Mouth-parts greatly projecting below, more or less styliform.	2.
	Mouth-parts not styliform	5.
2 (1)	Eyes and gn. 1 strongly developed. Telson entire	*Trischizostoma*, p. 528.
	Eyes and gn. 1 not strongly developed . .	3.
3 (2)	Uropod 3 biramous	4.
	Uropod 3 uniramous	*Stomacontion.*
4 (3)	Maxilla 1 palp rudimentary	*Acidostoma.*
	Maxilla 1 palp 2-jointed	*Phoxostoma.*
5 (1)	Gnathopod 1 chelate	6.
	Gnathopod 1 not chelate	7.
6 (5)	Gn. 2 chelate. Telson entire. Uropod 3 uniramous	*Paravalettia.*
	Gn. 2 subchelate. Telson cleft. Urop. 3 biramous	*Euonyx.*
7 (5)	Maxilla 1 without palp	8.
	Maxilla 1 with 2-jointed palp. . . .	9.
8 (7)	Rostrum scarcely developed	*Amaryllis.*
	Rostrum well developed	*Bathyamaryllis.*
9 (7)	Side-plates 1 and 2 very small . . .	*Cyphocaris*, p. 528.
	Side-plates 1 and 2 not very small . . .	10.
10 (9)	Telson entire. Gnathopod 1 simple . .	*Lysianassa*, p. 529.
	Telson cleft	11.
11 (10)	Side-plate 1 almost completely concealed by side-plate 2	*Aristias.*
	Side-plate 1 not concealed	12.

12 (11)	Branchial lamellae pleated on both sides	13.
	Branchial lamellae pleated on one side only	*Hippomedon.*
	Branchial lamellae simple, not pleated	15.
13 (12)	Gnathopod 1 subchelate	*Microlysias.*
	Gnathopod 1 simple	14.
14 (13)	Prp. 5 longer than prp. 4. Urop. 2 inner ramus strongly constricted distally	*Ichnopus.*
	Prp. 5 not longer than prp. 4. Urop. 2 inner ramus not constricted	*Socarnopsis.*
15 (12)	Mandible, palp attached behind (proximally to) molar	*Orchomenella.*
	Mandible, palp attached not behind molar	16.
16 (15)	Gnathopod 1 imperfectly subchelate	*Uristes*, p. 529.
	Gnathopod 1 distinctly subchelate	17.
17 (16)	Gnathopod 1, 6th joint distally widened	*Cheirimedon.*
	Gnathopod 1, 6th joint not distally widened	18.
18 (17)	Maxilla 2, inner plate not much shorter than outer plate	*Tryphosa.*
	Maxilla 2, inner plate much shorter than outer plate	19.
19 (18)	Gn. 2, 6th joint widening distally. Upper lip with forwardly projecting lobe	*Chironesimus*, p. 529.
	Gn. 2, 6th joint not widening, slender. Epistome and upper lip rounded in front, neither of them strongly projecting	*Eurythenes.*

Key to the species of *Trischizostoma*.

1	Palm of gnathopod 1 with numerous minute spinules or denticles	*remipes.*
	Palm of gnathopod 1 smooth	2.
2	Gn. 1 inner margin of finger denticulate; palmar angle produced	*serratum.*
	Gn. 1 inner margin of finger smooth; palmar angle not produced	*pauci-spinosum.*

Key to the species of *Cyphocaris*.

1	Prp. 3, 2nd joint, hind margin serrate, not produced into a sharp point or spur	*richardi.*
	Prp. 3, 2nd joint, lower hind corner produced in a sharp point or spur	2.
2	Prp. 3, 2nd joint produced in a sharp point, the margin above and below serrate	*anonyx.*
	Prp. 3, 2nd joint produced in a long spur	3.
3	Spur very long, the margin above with a few serrations	*challengeri.*
	Spur moderately long, the margin above smooth	*faurei.*

Key to the species of *Lysianassa*.

Pleon segment 3, postero-lateral lobe with a minute tooth on its upper corner, lower corner rounded. Telson apically notched. Urop. 3, peduncle feebly keeled	*variegata.*
Pleon segment 3, postero-lateral lobe rounded at both corners. Telson apically truncate, entire. Urop. 3, peduncle strongly keeled on upper margin.	*ceratina.*

Key to the species of *Uristes*.

Body not indurated. Telson oblong, lobes divergent. Side-plate 1 not very small, widening distally, oblong	*natalensis.*
Body indurated. Telson lanceolate, lobes contiguous. Side-plate 1 very small, semicircular	*induratus.*

Key to the species of *Chironesimus*.

Pleon segment 3, postero-lateral angle acutely produced	*adversicola.*
Pleon segment 3, postero-lateral angle rounded	*rotundatus.*

Key to the genera of *Stegocephalidae*.

Telson cleft. Mandible denticulate	*Stegocephaloides,* p. 529.
Telson entire. Mandible not denticulate	*Parandania.*

Key to the species of *Stegocephaloides*.

Prp. 5, 2nd joint with postero-inferior apex rounded, hind margin feebly serrate	*australis.*
Prp. 5, 2nd joint with postero-inferior apex subacute, hind margin distinctly serrate	*attingens.*

Key to the genera of *Ampeliscidae*.

1	Pleon without tufts of setae	2.
	Pleon with tufts of setae	*Triodos.*
2	Prp. 5, 6th joint foliaceous, 7th lanceolate	*Ampelisca,* p. 529.
	Prp. 5, 6th joint narrow, 7th spiniform	*Byblis,* p. 529.

Key to the species of *Byblis*.

Uropod 3 not extending beyond uropods 1 and 2. Telson not deeply cleft	*gaimardi.*
Uropod 3 extending much beyond uropods 1 and 2. Telson deeply cleft.	*anisuropus.*

Key to the species of *Ampelisca*.

1	Prp. 5, 3rd joint shorter than 4th joint	2.
	Prp. 5, 3rd joint longer than 4th joint	6.
2 (1)	Prp. 5, 7th joint spiniform as in *Byblis*	*byblisoides.*
	Prp. 5, 7th joint lanceolate	3.

3 (2)	Prp. 5, 2nd joint postero-distally excavate	*excavata.*
	Prp. 5, 2nd joint not excavate	4.
4 (3)	Pleon segment 3, postero-lateral margin bisinuate	*brevicornis.*
	Pleon segment 3, postero-lateral margin not bisinuate	5.
5 (4)	Pleon segment 3, postero-lateral angle quadrate	*chiltoni.*
	Pleon segment 3, postero-lateral angle rounded	*fusca.*
6 (1)	Peraeon segments 5–7 with ventral hooks	*diadema.*
	Peraeon segments without ventral hooks	7.
7 (6)	Antenna 2 not much longer than antenna 1 (the relative lengths may vary in the two sexes)	8.
	Antenna 2 much longer than antenna 1	10.
8 (7)	Gn. 1, palm with spines. Prp. 5, 4th joint with front apex produced. Corneal lenses small	9.
	Gn. 1, palm without spines. Prp. 5, 4th joint not produced. Corneal lenses large	*anomala.*
9 (8)	Gn. 1, palm with numerous spines. Prp. 5, 4th joint strongly produced	*palmata.*
	Gn. 1, palm with about 6 spines. Prp. 5, 4th joint slightly produced	*spinimanus.*
10 (7)	Corneal lenses 4. Pleon segment 3 shortly produced	*natalensis.*
	Corneal lenses 2. Pleon segment 3 strongly produced	*miops.*

Key to the genera of *Haustoriidae*.

Head elongate. Prp. 4 and 5 with 4th and 5th joints strongly expanded	*Platyischnopus.*
Head slightly produced. Prp. 4 and 5 with 4th and 5th joints not greatly expanded	*Urothoe.*

Key to the genera of *Phoxocephalidae*.

Eyes absent. Prp. 3, 2nd joint linear	*Harpinia.*
Eyes present. Prp. 3, 2nd joint expanded	*Pontharpinia.*

Key to the genera of *Amphilochidae*.

1	Opposing margins of side-plates 3 and 4 not exactly fitting	*Gitanopsis.*
	Opposing margins of side-plates 3 and 4 exactly fitting	2.
2	Mandible, molar absent, palp present	*Cyproidea.*
	Mandible, molar present, palp absent	*Hoplopleon,* p. 530.

Key to the species of *Hoplopleon*.

Prp. 4 (and 5), 2nd joint with hind margin straight. Finger of gn. 1 and 2 strongly ctenate	*australis.*
Prp. 4 (and 5), 2nd joint with hind margin convex. Finger of gn. 1 and 2 not ctenate	*medusarum.*

Key to the species of *Leucothoë*.

1	Pleon segment 3, postero-lateral angle quadrate	2.
	Pleon segment 3, postero-lateral angle produced, with sinus above the point	3.
2	Palm of gn. 2 minutely serrate	*spinicarpa.*
	Palm of gn. 2 with a comb-like row of teeth	*ctenochir.*
3	Palm of gn. 2 feebly denticulate. Antenna 1 not reaching beyond peraeon	*richiardii.*
	Palm of gn. 2 strongly denticulate. Antenna 1 reaching to pleon segment 3	*dolichoceras.*

Key to the species of *Stenothoë*.

1	Uropod 3 geniculate. Gn. 2 ♂, lower margin of 4th joint crenulate	*gallensis.*
	Uropod 3 not geniculate. Gn. 2 ♂, lower margin of 4th joint entire	2.
2	Gn. 2 ♂, palm with 2 teeth before the one at the finger-hinge. Gn. 1 greatly elongate	*dolichopous.*
	Gn. 2 ♂, palm with only one tooth at the finger-hinge. Gn. 1 not greatly elongate	*assimilis.*

S. adhaerens known only from ♀.

Key to the genera of *Phliantidae*.

1	Body not depressed. Telson transverse	*Plioplateia.*
	Body depressed. Telson pyriform.	2.
2	Side-plates small, separated. Head not sunk in 1st peraeon segment	*Temnophlias.*
	Side-plates 1–4 large, contiguous. Head sunk in 1st peraeon segment	*Palinnotus.*

Key to the genera of *Pardaliscidae*.

Cutting edge of mandible and 2nd joint of palp of maxilla 1 greatly expanded. Maxilliped, inner plates small, palp very large	*Nicippe.*
Cutting edge of mandible and 2nd joint of palp of maxilla 1 not greatly expanded. Maxilliped, inner plates obsolete, palp not very large	*Halice.*

Key to the genera of *Acanthonotozomatidae*.

Palp of maxilla 1 reaching beyond apex of outer plate	*Iphimedia.*
Palp of maxilla 1 not reaching apex of outer plate	*Panoploea.*

Key to the species of *Liljeborgia*.

1	Pleon segment 1 without any dorsal teeth. Epistome strongly projecting in an acute point	*epistomata.*
	Pleon segment 1 with at least one dorsal tooth. Epistome not very strongly projecting	2.

2	Pleon segments 1, 2, 4 each with 1 medio-dorsal tooth	3.
	Pleon segments 1 and 2 with more than one tooth	4.
3	Side-plates 1–3, postero-inferior angles not notched	*proxima.*
	Side-plates 1–4, postero-inferior angles notched. Side-plate 4 with 4 teeth on hind margin	*consanguinea.*
4	Pleon segments 1 and 2 quinquedentate	*dubia.*
	Pleon segments 1 and 2 tridentate	*kinahani* var. *capensis.*

Key to the genera of *Oedicerotidae.*

1	Eyes completely confluent without any line of demarcation, Gn. 1 and 2, process of 5th joint very long and slender	*Perioculodes.*
	Eyes not completely confluent. Gn. 1 and 2, process of 5th joint not very long	2.
2	Gn. 2, hand elongate, chelate	*Synchelidium.*
	Gn. 2, hand not elongate, not chelate	3.
3	Uropod 3 much longer than uropods 1 and 2	*Halicreion.*
	Uropod 3 not much longer than uropods 1 and 2	4.
4	Eyes wanting or not placed on the rostral projection	5.
	Eyes or ocular pigment placed on rostral projection	*Oediceroides*, p. 532.
5	Peraeopods 1 and 2 with widened joints	*Aceroides.*
	Peraeopods 1 and 2 without widened joints	*Bathymedon.*

Key to the species of *Oediceroides.*

Antenna 1, 2nd joint not plumose. Peraeopod 5, 2nd joint oval	*cinderella.*
Antenna 1, 2nd joint plumose. Peraeopod 5, 2nd joint pyriform	*plumicornis.*

Key to the genera of *Tironidae.*

1	Telson entire	*Bruzelia.*
	Telson cleft	2.
2	Eyes 4. Telson strongly spinose	*Tiron.*
	Eyes 2, coalesced, separate, or none. Telson not spinose	3.
3	Side-plate 3 scarcely widened below. Gn. 1 and 2 feeble, imperfectly subchelate	*Syrrhoites.*
	Side-plate 3 widened below. Gn. 1 and 2 simple, 1 stouter than 2	*Austrosyrrhoe.*

Key to the species of *Epimeria* (*Paramphithoidae*).

1	Side-plate 5 acutely produced	2.
	Side-plate 5 not acutely produced	*semiarmata.*
2	Peraeon segments 5–7, as well as pleon, dentate	*cornigera.*
	Only the pleon carinate and dentate	*longispinosa.*

Key to the species of *Nototropis* (*Atylidae*).

	Branchial lamellae simple	*homochir.*
	Branchial lamellae pleated	*granulosa.*

Key to the genera of *Eusiridae.*

1	Gn. 1 and 2, 6th joint attached to the produced apex of 5th joint	*Eusirus.*
	Gn. 1 and 2, 6th joint with normal attachment	2.
2	Gn. 1 and 2, 5th joint small, cup-shaped.	3.
	Gn. 1 and 2, 5th joint large, triangular	*Cleonardopsis.*
3	Peraeopods stout.	*Eusiroides.*
	Peraeopods slender	*Rhachotropis,* p. 533.

Key to the species of *Rhachotropis.*

1	Prp. 5, 2nd joint with strong process on hind margin. Maxilliped with elongate palp.	*palporum.*
	Prp. 5, 2nd joint without process on hind margin. Palp of maxilliped not very long	2.
2	Pleon segment 3, postero-lateral margin not serrate.	*anomala.*
	Pleon segment 3, postero-lateral margin serrate	3.
3	Prp. 5, 2nd joint acute at lower hind corner	*kergueleni.*
	Prp. 5, 2nd joint not acute at lower hind corner	4.
4	Pleon segment 3 with the dorsal keels ending in teeth	*grimaldii.*
	Pleon segment 3 with the keels not ending in teeth	*paeneglaber.*

Key to the species of *Paramoera* (*Pontogeneiidae*).

	Pleon dorsally without teeth. Postantennal angle of head rounded-quadrate.	*capensis.*
	Pleon segments 1 and 2 each with a flat dorsal tooth. Post-antennal angle of head acute.	*bidentata.*

Key to the genera of *Gammaridae.*

1	Telson emarginate. (Fresh-water. Transvaal)	*Eucrangonyx.*
	Telson cleft.	2.
2	Urop. 3, rami large, foliaceous. Gn. 1 simple.	*Megaluropus.*
	Urop. 3, rami not foliaceous. Gen. 1 subchelate	3.
3	Urop. 3, outer ramus elongate, its 2nd joint unusually long	*Eriopisella.*
	Urop. 3, 2nd joint of outer ramus very short.	4.
4	Mandible, 2nd joint of palp shorter than 1st	*Parelasmopus.*
	Mandible, 2nd joint of palp longer than 1st	5.
5	Body with dorsal groups of spinules on pleon. (Fresh-water. Cape Province).	*Gammarus.**
	Body without groups of spinules on pleon (Marine).	6.

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* For key to the species of *Gammarus* see Barnard, Trans. Roy. Soc. S. Afr., vol. xiv, p. 167, 1927.

6	Urop. 3, rami very unequal	*Melita*, p. 534.
	Urop. 3, rami not very unequal	7.
7	Maxilla 1 and 2, inner plates very setose	8.
	Maxilla 1 and 2, inner plates not very setose	9.
8	Urop. 3, rami greatly developed, elongate. Mandible, 3rd joint of palp as short as 1st	*Ceradocus*, p. 534.
	Urop. 3, rami short. Mandible, 3rd joint of palp much longer than 1st	*Elasmopoides*.
9	Mandibular palp robust	*Elasmopus*, p. 534.
	Mandibular palp slender	*Maera*, p. 534.

Key to the species of *Melita*.

1	Gn. 2 in ♂, one of the pair very robust, chelate. Prp. 5, 2nd joint widest proximally	*fresnelii*.
	Gn. 2 in ♂ subchelate	2.
2	Gn. 2 in ♂, one of the pair very robust. Prp. 5, 2nd joint widest distally	*subchelata*.
	Gn. 2 in ♂ moderate. Prp. 5, 2nd joint widest proximally	3.
3	Pleon segment 3, postero-inferior angle shortly acute. Pleon segments non-dentate dorsally. Side-plate 1 oblong	*zeylanica*.
	Pleon segment 3, postero-inferior angle strongly produced. Pleon segment 4 with one dorsal tooth, segment 5 with 2 pairs of denticles. Side-plate 1 triangular, produced forwards	*orgasmos*.

Key to the species of *Ceradocus*.

Pleon segments dorsally dentate. 6th joint gn. 1 broadly ovate	*rubromaculatus*.
Pleon segments not serrate. 6th joint gn. 1 narrow, cylindrical	*aviceps*.

Key to the species of *Elasmopus*.

Pleon segments without dorsal keel	*pectenicrus*.
Pleon segment 4 with a single keel	*japonicus*.

Key to the species of *Maera*.

1	Pleon segments without dorsal keels	2.
	Pleon segment 4 with a pair of keels	*subcarinata*.
2	Urop. 3 scarcely or not at all extending beyond urop. 1	3.
	Urop. 3 extending much beyond urop. 1	7.
3	Prp. 4 and 5, 2nd joint not prolonged at lower hind corner	*grossimanus*.
	Prp. 4 and 5, 2nd joint lobed at lower hind corner	4.
4	Side-plates 1 and 2 serrate on lower margin	*bruzelii*.
	Side-plates 1 and 2 not (or scarcely) serrate	5.

5	Gn. 2, palm defined by one tooth	6.
	Gn. 2, palm defined by a pair of teeth, ♀ palm with a notch between two teeth	*hirondellei.*
6	Gn. 2, palm ♂ transverse, with notch, ♀ slightly oblique, regularly crenulate. Postero-inferior angle pleon segment 3 with short point and notch above it (hind margin sinuous)	*inaequipes.*
	Gn. 2, palm ♂♀ oblique, crenulate. Postero-inferior angle pleon segment 3 acute (hind margin evenly concave)	*vagans.*
	Gn. 2, palm ♂♀ oblique, with 4 strong teeth (incl. one at defining angle). Postero-inferior angle pleon segment 3 quadrate with very small point (hind margin straight)	*boeckii.*
7	Body extremely slender	*hamigera.*
	Body not extremely slender	*mastersii.*

Key to the genera of *Dexaminidae.*

Sixth joint of all peraeopods distally expanded, forming an imperfect chela with the finger	*Polycheria.*
Sixth joint of peraeopods not expanded, slender	*Guernea.*

Key to the genera of *Talitridae.*

1	Maxilliped, 4th joint of palp wanting or rudimentary	2.
	Maxilliped, 4th joint of palp distinct	3.
2	Gn. 1 simple in ♂♀. Gn. 2 feebly chelate in ♀♂. (Terrestrial. Inland)	*Talitroides.*
	Gn. 1 subchelate in ♂♀. Gn. 2 strongly subchelate in ♂, feebly chelate in ♀. (Littoral)	*Orchestia.*
	Gn. 1 subchelate in ♂, simple in ♀. Gn. 2 strongly subchelate in ♂, feebly chelate in ♀. (Marine. Littoral)	*Talorchestia*, p. 536.
3	Urop. 3 consisting of a single joint	*Chiltonia.*
	Urop. 3 consisting of a peduncle and at least one ramus	4.
4	Urop. 3 with two rami (the inner one, or both rami, very small)	5.
	Urop. 3 with one ramus	6.
5	Telson divided	*Parhyale.*
	Telson entire	*Neobule.*
6	Telson entire (or minutely notched)	7.
	Telson divided	8.
7	Maxilliped, 4th joint of palp not unguiform. Gn. 1 subchelate. Gn. 2 strongly subchelate in ♂, feebly chelate in ♀. Gn. 2 ♂, 5th joint not lobed	*Parorchestia*, p. 536.
	Maxilliped, 4th joint unguiform. Gn. 1 and 2 subchelate, stronger in ♂ than in ♀. Gn. 2, 5th joint lobed below	*Parhyalella.*
8	Gn. 2, 5th joint not lobed or produced between the 4th and 6th joints in ♂	*Hyale*, p. 537.
	Gn. 2, 5th joint produced between 4th and 6th joints in both sexes	*Allorchestes.*

Key to the species of *Talorchestia.*

Gnathopod 1 ♂, 4th joint without (scabrous) lobe on inner margin in all the species, including the West African species.

A. Postero-inferior corner pleon segment 3 rounded. Gn. 1 ♂, 5th joint without lobe on inner apex. Gn. 1 ♀ 2nd joint broad, hind margin convex. Gn. 2 ♂, 6th joint with large excision on palm in adult. Gn. 2 ♀, 2nd joint anterior margin evenly convex . . . . . . *capensis.*

B. Postero-inferior corner pleon segment 3 quadrate, sometimes with more or less acute, shortly produced point. Gn. 1 ♂, 5th joint with lobe on inner apex.

  1. Adult ♂ with pairs of dorsal spines on pleon segments 1 and 2. Gn. 2 ♂, 6th joint with excision on palm. Gn. 1 ♀, 2nd joint broad, hind margin convex. Gn. 2 ♀, 2nd joint anterior margin evenly convex, 5th joint widest at base. Peraeopod 4 ♂, long, 2nd joint expanded . . . *quadrispinosa.*

  2. Adult ♂ without dorsal spines. Gn. 2 ♂, 6th joint with evenly convex palm. Gn. 1 ♀, 2nd joint nearly linear. Gn. 2 ♀, 5th joint with lower margin expanded into a broadly rounded lobe. None of the peraeopods unusually long, or with expanded joints in ♂.

    a. Lower margin pleon segments 2 and 3 not sculptured. Peraeopod 5 2nd joint hind margin with comparatively few serrations. Gn. 2 ♂, 6th joint widening to palm which is only slightly convex. Gn. 2 ♀, 2nd joint not strongly expanded on anterior margin, anterior and posterior margins subparallel . . . . *australis.*

    b. Lower margin pleon segments 2 and 3 with a series of minute ridges appearing as if crimped. Peraeopod 5 2nd joint hind margin with very numerous crenulations. Gn. 2 ♂, 6th oval usually widest in basal third, palm distinctly convex. Gn. 2 ♀, 2nd joint strongly expanded on proximal half of anterior margin . . *ancheidos.*

Key to the species of *Parorchestia.*

Gn. 1 ♂, 6th joint subtriangular, widening distally. Gn. 2 ♂, palm oblique, straight, well-defined . . . . *rectipalma.*

Gn. 1 ♂, 6th joint cylindrical. Gn. 2 ♂, palm not very oblique, rounded with 2 shallow notches, ill-defined. ♀ unknown . . . . *dassenensis.*

Key to the species of *Hyale*.

1	Antenna 1, 1st joint with projection on lower apex, ♂♀	*saldanha.*
	Antenna 1, 1st joint without projection	2.
2	Gn. 2 ♂, hind margin * of hand extremely short	3.
	Gn. 2 ♂, hind margin of hand not extremely short	4.
3	Gn. 1 ♂, hand as wide as long, palm transverse	*maroubrae.*
	Gn. 1 ♂, hand oval, palm oblique	*macrodactylus.*
4	Gn. 2 ♂, finger strongly constricted at base	*diastoma.*
	Gn. 2 ♂, finger not constricted at base	5.
5	Antenna 2, flagellum strongly setose	*hirtipalma.*
	Antenna 2, flagellum not strongly setose	6.
6	Prp. 5, hind margin of 2nd joint strongly serrate	*inyacka.*
	Prp. 5, hind margin of 2nd joint entire (or only feebly crenulate)	*grandicornis.*

Key to the genera of *Aoridae*.

1	Urop. 3 biramous	2.
	Urop. 3 uniramous	*Grandidierella.*
2	Gn. 1 ♂, 4th joint immensely produced	*Aora.*
	Gn. 1 ♂, 5th joint not produced	3.
3	Gn. 1 ♂, 5th and 6th joints subequal in width	*Lembos*, p. 537.
	Gn. 1 ♂, 5th joint much wider than 6th	*Lemboides*, p. 537.

Key to the species of *Lembos*.

1	No ventral spines. Gn. 2, 2nd joint not hooked	2.
	Ventral spines on peraeon segments 3–7 in ♂. Gn. 2, 2nd joint hooked at front apex	*hypacanthus.*
2	Prp. 2, 4th joint setose. Gn. 2, hand not more than twice as long as broad	*hirsutipes.*
	Prp. 2, 4th joint not setose. Gn. 2, hand very slender, nearly 4 times as long as broad	*leptocheirus.*

Key to the species of *Lemboides*.

1	No ventral spines	2.
	Ventral spines on peraeon segments 3–7	*acanthiger.*
2	Gn. 1 ♂, palm oblique	*afer.*
	Gn. 1 ♂, palm transverse	*crenatipalma.*

Key to the genera of *Photidae*.

1	Urop. 3 with inner ramus rudimentary	*Cheiriphotis.*
	Urop. 3 with two rami	2.
2	Urop. 3, rami unequal, the inner ramus minute	*Photis*, p. 538.
	Urop. 3, rami subequal, the inner not minute	3.
3	Gn. 2 stronger in ♂ than in ♀, with 5th joint relatively small	*Eurystheus*, p. 538.
	Gn. 2 alike in both sexes, with large 5th joint	*Chevalia.*

* Exclusive of the palmar portion against which the finger closes.

Key to the species of *Photis*.

1	Ocular lobes very long	*dolichommata*.
	Ocular lobes not very long	2.
2	Gn. 2 ♂, defining tooth of hand and the lobe of 3rd joint pointing inwards	*longimanus*.
	Gn. 2 ♂, defining tooth of hand not pointing inwards, 3rd joint not lobed	*uncinata*.

Key to the species of *Eurystheus*.

1	Prp. 3–5, hind margin of 2nd joint strongly dentate	*holmesi*.
	Prp. 3–5, hind margin of 2nd joint not strongly dentate	2.
2	Eyes lageniform or oblong	3.
	Eyes horizontally or obliquely oval	5.
3	Eyes lageniform	*atlanticus*.
	Eyes oblong	4.
4	Gn. 2 ♂, hand ovoid, palm with several small lobes	*afer*.
	Gn. 2 ♂, hand ovoid, palm with 2 large lobes	*imminens*.
	Gn. 2 ♂, hand oblong, palm transverse with deep incision	*scissimanus*.
5	None of the segments dorsally dentate. Gn. 2, finger shorter than palm, closing on to inner surface of hand	*palmoides*.
	Pleon segment 4 with 3, segment 5 with 2 dorsal teeth, Gn. 2, finger matching palm and closing on to its edge	*semidentatus*.

Key to the genera of *Ampithoidae*.

1	Antenna 1 without accessory flagellum	2.
	Antenna 1 with small, 1-jointed accessory flagellum	*Cymadusa*.
2	Peraeopod 5 enormously enlarged	*Macropisthopous*.
	Peraeopod 5 not enlarged	3.
3	Side-plates deep. Mandibular palp stout. Prp. 3–5, 6th joint not expanded apically	*Ampithoë*, p. 538.
	Side-plates shallow. Mandibular palp slender. Prp. 3–5 6th joint apically expanded to form a distinct palm	*Exampithoë*.

Key to the species of *Ampithoë*.

1	Gn. 2 ♂, palm deeply excavated, defined by a conspicuous tooth	*ramondi*.
	Gn. 2 ♂, palm not deeply excavate, not defined by a conspicuous tooth	2.
2	Antenna 2 not densely setose. Prp. 1 and 2, 2nd joint strongly expanded. Prp. 3 and 4 very stout	*falsa*.
	Antenna 2 densely setose. Prp. 1 and 2, 2nd joint not strongly expanded. Prp. 3 and 4 not very stout	*africana*.

Key to the genera of *Jassidae*.

1	Prp. 1–5, 6th joint not prehensile	2.
	Prp. 1–5, 6th joint prehensile	*Isaeopsis.*
2	Gn. 2 ♂, hind margin of 6th joint produced in a tooth. Gn. 2 ♀ much larger than gn. 1	*Jassa.*
	Gn. 2 ♂, hind margin of 6th joint not armed. Gn. 2 ♀ not much larger than gn. 1	*Ischyrocerus*, p. 539.

Key to the species of *Ischyrocerus*.

1	None of the peraeon segments keeled	*anguipes.*
	Some of the segments dorsally keeled in ♂	2.
2	Peraeon segments 1, 2, 6 and 7 keeled	*carinatus.*
	Peraeon segments 1–6 keeled	*gorgoniae.*

Key to the genera of *Corophiidae*.

1	Mandibular palp 3-jointed	2.
	Mandibular palp not 3-jointed	4.
2	Urop. 3, inner ramus distinct but very minute	*Camacho.*
	Urop. 3, inner ramus wanting, or not articulated	3.
3	Urop. 2 biramous	*Ericthonius.*
	Urop. 2 uniramous	*Cerapus.*
4	Mandibular palp 1-jointed. Antenna 2 not very stout	*Siphonoecetes*, p. 539.
	Mandibular palp 2-jointed. Antenna 2 very stout	*Corophium*, p. 539.

Key to the species of *Siphonoecetes*.

Antenna 1, flagellum 7-jointed	*dellavallei.*
Antenna 1, flagellum 10–14-jointed	*orientalis.*

Key to the species of *Corophium*.

Pleon segments 4–6 coalesced. Gn. 2, dactylus with feeble decumbent denticles	*acherusicum.*
Pleon segments 4–6 distinct. Gn. 2, dactylus with strong outstanding denticles	*triaenonyx.*

Key to the genera of *Podoceridae*.

Pleon with only 5 distinct segments in front of the telson. Two pairs of uropods	*Laetmatophilus*, p. 539.
Pleon with 6 distinct segments in front of telson. Three pairs of uropods	*Podocerus*, p. 540.

Key to the species of *Laetmatophilus*.

1	Gn. 2 ♂, palm with 3 teeth	*tridens.*
	Gn. 3 ♂, palm with 2 teeth	2.
2	Gn. 1, 6th joint widened	*purus.*
	Gn. 1, 6th joint not widened	*durbanensis.*

Key to the species of *Podocerus*.

1	Body not carinate	2.
	Body carinate.	4.
2	Body with spiniform tubercles	*multispinis.*
	Body without spiniform tubercles	3.
3	Prp. 1 and 2, 2nd joint linear	*brasiliensis.*
	Prp. 1 and 2, 2nd joint with process on distal front margin	*africanus.*
4	♂ peraeon segments 6 and 7, and pleon segments 1 and 2 carinate	*cristatus.*
	♂ head, peraeon and pleon segments 1 and 2 carinate	*inconspicuus.*

Key to the genera of *Lanceolidae*.

Eyes small and indistinct	[*Lanceola*].
Two large concave "reflectors" on each side of head	*Scypholanceola.*

Key to the species of *Vibilia*.

Prp. 7, 2nd joint shorter than the following joints together	*armata.*
Prp. 7, 2nd joint longer than the following joints together	*chuni.*

Key to the genera of *Hyperiidae*.

1	Prp. 2 (gn. 2), 5th joint produced in a long knife-like process opposing, and as long as, the 6th joint	*Hyperoche.*
	Prp. 2, 5th joint not produced in a long thin process, but with a spoon-shaped lobe	2.
2	Prp. 3 and 4, 5th joint expanded. Prp. 5 very long	*Parathemisto.*
	Prp. 3 and 4, 5th joint not expanded. Prp. 4 not excessively long	*Hyperia*, p. 540.

Key to the species of *Hyperia*.

Head not longer than peraeon segments 1 and 2 together. All the peraeon segments distinct. 12–30 mm.	*galba.*
Head large, equal to first 4 segments together. Peraeon segments 1 and 2 (usually) fused in ♂ (antennae long), segments 1–3 (or 4) fused in ♀ (antennae short). 2–4 mm.	*promontorii.*

Key to the genera of *Phronimidae*.

Body not very slender. Peraeon segments 1 and 2 distinct. Peraeopods not very elongate. Urop. 2 well developed	*Phronima*, p. 541.
Body very slender. Peraeon segments 1 and 2 coalescent. Peraeopods very elongate and slender, Urop. 2 rudimentary or absent	*Phronimella.*

Key to the species of *Phronima*.

1	♀ (antenna 1 very short)	2.
	♂ (antenna 1 well developed)	4.
2	Pleon segments 1–3, postero-lateral angles acutely pointed. 15–40 mm.	3.
	Pleon segments 1–3, postero-lateral angles obtusely rounded. 5–10 mm..	*colletti.*
3	Prp. 5, hand ½ length of 2nd joint, palm very oblique, finger with swelling on inner margin	*sedentaria.*
	Prp. 5, hand subequal to 2nd joint, palm transverse, finger with inner margin even	*atlantica.*
4	Antenna 2 rudimentary. Pleon segments 1–3, postero-lateral angles subacute	*sedentaria.*
	Antenna 2 well developed. Pleon segments 1–3, postero-lateral angles rounded.	5.
5	Prp. 5, finger overlapping palm.	*atlantica.*
	Prp. 5, finger matching palm	*colletti.*

Key to the genera of *Phrosinidae*.

1	Prp. 2 reduced to the 2nd joint only. Prp. 3–6 subchelate	*Phrosina.*
	Prp. 2 normal.	2.
2	All the peraeopods simple, except 5th, which is prehensile. Uropods lanceolate	*Primno.*
	Prp. 3–5 subchelate; Prp. 5 very stout. Uropods broadly oval	[*Anchylomera*].

Key to the genera of *Platyscelidae*.

Prp. 1 and 2 chelate	*Hemityphis.*
Prp. 1 and 2 minutely subchelate	*Tetrathyrus.*
Prp. 1 and 2 simple	*Paratyphis*, p. 541.

Key to the species of *Paratyphis*.

Prp. 7 with a distinct terminal joint attached to the 2nd joint. Urop. 3, outer ramus ¾ length of inner	*promontorii.*
Prp. 7 reduced to the 2nd joint and a minute rudiment of another joint. Urop. 3, outer ramus not more than half length of inner	*maculatus.*

Key to the genera of *Oxycephalidae*.

1	Body moderately elongate. Prp. 7 normal	2.
	Body extremely elongate, rod-like. Prp. 7 reduced to a single oval sac-like joint	*Rhabdosoma.*
2	Inner rami of some of the uropods fused with their peduncles.	3.
	None of the inner rami of uropods fused with their peduncles.	4.

3	Inner rami of urop. 3 fused with peduncle	*Calamorhynchus.*
	Inner rami of uropods 2 and 3 fused with peduncles	*Oxycephalus*, p. 542.
4	Head acutely rostrate in front, not constricted into a neck behind	*Streetsia.*
	Head bluntly rostrate in front, constricted into a neck behind	*Glossocephalus.*

Key to the species of *Oxycephalus.*

Lower (hind) margin of 6th joint of prp. 1 and 2 strongly serrate. Lower margin of pleon segments 1–3 each with a sharp tooth	*clausi.*
Lower margin of 6th joint of prp. 1 and 2 smooth. Lower margin of pleon segments 1–3 rounded, without teeth	*tuberculatus.*
Lower margin of 6th joint of prp. 1 and 2 pectinate. Lower margin of pleon segments 1–3 without teeth	*latirostris.*

Key to the genera of *Caprellidae.*

(Adapted from Mayer, Siboga Exp. monogr., xxxiv, 1903. Mayer reckons paraeopods 1–7, but here gnathopods 1 and 2 and peraeopods 1–5 are reckoned.)

1	Three pairs of branchiae (on segments 2–4)	2.
	Two pairs of branchiae (on segments 3 and 4)	4.
2	Prp. 1 and 2 normal. Prp. 3 with 5 free joints	3.
	Prp. 1 and 2 absent. Prp. 3 with 4 free joints. Mandibular palp 3-jointed	*Caprellina*, p. 542.
3	Pleon ♂ with 3, ♀ with 2 distinct and one indistinct pairs of appendages	*Phtisica* (*Proto*).
	Pleon of ♂ and ♀ with only one pair of appendages	*Metaproto.*
4	Prp. 1 and 2 absent	5.
	Prp. 1 and 2 each reduced to a single joint (fig. p. 522). Mandibular palp 3-jointed	6.
5	Mandibular palp 3-jointed	*Pseudaeginella.*
	Mandibular palp absent	*Caprella*, p. 542.
6	Pleon ♂ with 1 pair of appendages. Pleon segments 6 and 7 fused	*Metaprotella.*
	Pleon ♂ with 1 pair of 2-jointed appendages	*Orthoprotella.*
	Pleon ♂ with 2 pairs rudimentary appendages	*Paradeutella.*

Key to the species of *Caprellina.*

Body smooth	*longicollis.*
Body spinose	*spiniger.*

Key to the species of *Caprella.*

1	Prp. 3–5, 6th joint parallel-sided, without clasping spines near base. Gn. 2 ♂ inserted posteriorly on segment 2.	2.
	Prp. 3–5, 6th joint subtriangular, more or less expanded basally, and with clasping spines	3

2	Gn. 2, 2nd joint longer than the not very long 2nd segment of peraeon	*laevipes.*
	Gn. 2, 2nd joint shorter than the very long 2nd segment of peraeon	*danilevskii.*
3	Gn. 2, 2nd joint equal to length of 2nd segment, or nearly so	4.
	Gn. 2, 2nd joint distinctly shorter than segment 2	5.
4	Head with strong forwardly directed rostral point	*scaura.*
	Head rounded in front	*triodous.*
5	Head with short rostral point	6.
	Head rounded or feebly quadrate in front. A ventral spine between bases of gn. 2	*equilibra.*
6	A ventral spine between bases of gn. 2	*cicur.*
	No ventral spine	*penantis* and vars., and *falsa.*

Key to the genera of *Cyamidae.*

1	Maxilla 2 with outer lobes. Unguis of gn. 1 not distinct from dactylus	2.
	Maxilla 2 without outer lobes. Unguis of gn. 1 distinct from dactylus. Maxilliped, lobes fused, palp absent. Branchiae on segments 3 and 4 single	[*Isocyamus*].
2	Maxilliped, palp fully developed in adult. Branchiae on segments 3 and 4 single or double	*Cyamus*, p. 543.
	Maxilliped, palp well developed only in young, rudimentary in adult. Branchiae on segments 3 and 4 single	*Paracyamus*, p. 543.

Isocyamus, not yet recorded from the South African region, occurs on dolphins, black-fish, *Grampus* and *Pseudorca.*

Key to the species of *Cyamus.*

Body broadly ovate. Branchiae double (at least in adult)	*ovalis.*
Body narrow, parallel-sided in ♂, more oval in ♀. Branchiae single	[*balaenopterae*].

Key to the species of *Paracyamus.*

1	Body ovate	2.
	Body parallel-sided. No ventral pointed tubercles in either sex	*gracilis.*
2	Ventral pointed tubercles on segments 5–7, in ♀ one pair each on segments 5 and 7, 2 pairs on segment 6, in ♂ one pair on each of the segments	*erraticus.*
	Ventral pointed tubercles on segments 5–7, in ♀ one pair on each segment, in ♂ one pair each on segments 6 and 7.	*boöpis.*